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**SEMIANNUAL  
GROUNDWATER  
MONITORING REPORT  
FOR AUGUST 1996**

**THE MONADNOCK COMPANY  
18301 ARENTH AVENUE  
CITY OF INDUSTRY, CALIFORNIA**

**SEPTEMBER 1996**

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## **SEMIANNUAL GROUNDWATER MONITORING REPORT FOR AUGUST 1996**

**THE MONADNOCK COMPANY  
18301 ARENTH AVENUE  
CITY OF INDUSTRY, CALIFORNIA**

**September 1996**

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## **1.0 INTRODUCTION**

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This report summarizes the sampling procedures and analytical results for groundwater monitoring conducted in August 1996 at the Monadnock Company (Monadnock) facility. TRW Inc. (TRW) conducts semiannual monitoring of eight existing groundwater wells at the Monadnock facility.

### **1.1 Background**

The Monadnock facility is located at 18301 Arent Avenue in City of Industry, California (Figure 1-1). TRW used the former Monadnock facility to fabricate fasteners and electronic hardware from February 1968 through October 1980. Previous manufacturing processes used at the facility included degreasing, heat treating, and metal plating. Volatile organic compounds (VOCs) have been detected in groundwater beneath the facility and primarily include 1,1-dichloroethene (1,1-DCE), trichloroethene (TCE), and tetrachloroethene (PCE), with generally lower concentrations of several other VOCs. In addition, cadmium, chromium, and cyanide have been detected in the groundwater.

### **1.2 Hydrogeologic Conditions**

The Monadnock facility is located in the southern San Gabriel Basin, a broad piedmont alluvial plain occupying the northern portion of the Los Angeles Basin. The site lies within the Puente Valley, a northwesterly-oriented sub-basin that merges with the main San Gabriel Basin approximately five miles northwest of the site. The Monadnock site and vicinity are underlain by Quaternary alluvial deposits that comprise the basinfill sequence of the San Gabriel Basin. The approximate depth to bedrock beneath the alluvial sequence in this area of the Puente Valley is about 100 feet. Bedrock of the Puente Valley is comprised of relatively impermeable sedimentary rock of Tertiary age.

Alluvial stratigraphy within the Puente Valley is complex and lithologic units are laterally discontinuous. Local and regional geologic data indicate the stratigraphy is comprised of an interfingering sequence of clays, clayey to silty sands and clean sands, and clayey to sandy gravels.

The first occurrence of groundwater beneath the site and vicinity is about 30 feet below ground surface (bgs), generally within a discontinuous silty to sandy clay lens of variable thickness (generally 10 to 15 feet). This clay lens occurs beneath a sand unit designated as the "upper" sand (most of which is unsaturated), and above a deeper sand unit designated as the "lower" sand. The lower sand is silty to clayey in nature and contains abundant gravel. This lower sand generally extends from a depth of about 40 feet to a depth up to about 85 feet bgs, according to lithologic data from the two deepest boreholes advanced onsite [borings MW-10 (abandoned by TRW in 1991) and MW-11]. Below a depth of about 85 feet, a clean gravelly sand occurs, the thickness of which has not been investigated.

Seven monitoring wells in the site area extend to depths between 45 and 60 feet bgs and are screened within the upper sand unit, the silty clay lens (where present), and a portion of the underlying lower sand unit. One monitoring well, MW-11, extends to a depth of 97 feet and is screened within the lower sand unit and the underlying clean gravelly sand encountered at a depth of 85 feet.

The direction of groundwater flow beneath the site and vicinity is generally to the west-southwest and is influenced primarily by the structural orientation of the Puente Valley sub-basin.

### **1.3 Groundwater Monitoring Program**

The groundwater monitoring program for the site includes seven monitoring wells installed prior to 1995 (MW-1 through MW-4, MW-7, MW-8, and MW-11), in addition to the new monitoring well installed at the Presto Food Products site in August 1995 (MW-12). Groundwater samples are analyzed for halogenated volatile organics by EPA Method 601/8010, total chromium and cadmium by EPA Method 3005/6010, and total cyanide by EPA Method 335.2/9010.

During the August 1996 monitoring event, all eight wells were sampled using the field procedures described in Section 2.0. However, the water level in well MW-2 was not measured because the well is now used for groundwater extraction, as discussed in Section 1.4.

### **1.4 Groundwater Remediation System**

A groundwater remediation system was implemented at the site in November 1995 utilizing shallow well MW-2 for extraction. Extracted groundwater is treated onsite using carbon adsorption and ion exchange units and is discharged to the onsite storm-drain system under a National Pollution Discharge Elimination System (NPDES) Permit.

## 2.0 FIELD PROCEDURES

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TRW personnel conducted the August 1996 monitoring event. Groundwater samples were collected from the eight monitoring wells on August 6-7, 1996. Groundwater levels in wells MW-1, MW-3, MW-4, MW-7, MW-8, MW-11, and MW-12 were measured on August 5, 1996. A water-level measurement was not taken in well MW-2 as it is currently being used as an extraction well and was pumping at the time water levels were measured. An electronic sounder was used to measure the depth to water below the top of the respective well casing to the nearest 0.01 foot. Water-level elevations for each of the wells are discussed in Section 3.2.

Each monitoring well was purged of a minimum of three well casing volumes prior to sampling. Well purging was accomplished using a 3.5-inch diameter PVC bailer. Measurements of pH, specific conductivity, and temperature were recorded at periodic intervals during the purging of each well. Water-level measurement, well purging, and well sampling data were recorded for each well on water sample logs. Copies of these logs are contained in Appendix A.

Groundwater levels were again measured in each of the wells after purging. Groundwater samples were collected from each well after either the water level had recovered to at least 80 percent of its original casing volume or within a 24-hour period after the purging was complete.

Groundwater samples were collected with a Teflon bailer, transferred to appropriately-sized and labeled bottles supplied by the analytical laboratory, stored in a portable ice chest, and cooled with ice until delivery to the analytical laboratory. Groundwater samples collected for analysis of halogenated volatile organics (EPA Method 601) were transferred to 40-milliliter VOA vials; groundwater samples collected for analysis of total chromium and cadmium were transferred to 200-milliliter plastic bottles; groundwater samples collected for analysis of cyanide were transferred to 300-milliliter plastic bottles. Each of the VOA vials was completely filled in a manner such that no headspace existed.

Duplicate samples were collected from each well, though in most instances only one sample was analyzed by the laboratory. The duplicate samples were for emergency and/or confirmation purposes.

Groundwater samples were delivered under chain-of-custody documentation to CKY Inc. (CKY), a California-certified hazardous waste analytical laboratory located in Torrance, California, for chemical analysis.

Purging and sampling equipment was cleaned between use in each well. The bailers were suspended into each well from a new nylon rope or monofilament line to minimize the potential for cross-contamination. Decontamination was conducted with a non-phosphate detergent wash and followed by three deionized water rinses. Wastewater, generated from purging and decontamination activities, was collected in 55-gallon drums. The drummed wastewater was then stored onsite for later disposal or treatment by TRW.

## **3.0 RESULTS AND DISCUSSION**

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### **3.1 Field Parameters**

The field parameters measured in each well at the completion of purging are listed in Table 3-1. These parameters had stabilized to within ten percent for successive measurements at the completion of purging in all wells.

### **3.2 Water-Level Elevations**

Historic water-level elevation data for the eight monitoring wells are presented in Table 3-2. The historic data include the measured depths to groundwater and the calculated water-level elevations recorded for each well since June 1994, in addition to the current data recorded in August 1996.

Water-level elevation contours for the shallow saturated interval beneath the site were generated using the August 1996 data (Figure 3-1). Water-level elevation contours were not generated for the deeper interval because only one well (MW-11) is completed in this interval.

The water-level elevation contours for August 1996 indicate that the direction of groundwater flow in the shallow interval is to the west-southwest at an average horizontal hydraulic gradient of about 0.007. The approximate hydraulic influence created by pumping from well MW-2 is indicated by the depression in the water-level contours in the area of this well. This influence was estimated based on current and historic water-level elevations and the results of a theoretical capture zone analysis. The direction of groundwater flow and the magnitude of the horizontal gradient, which has varied historically from about 0.006 to 0.008, are consistent with previous monitoring events.

A vertical hydraulic gradient in the downward direction is apparent beneath the site, between the intervals in which the shallow wells and the deeper well are completed. The magnitude of the vertical gradient is small, as indicated by a water-level difference of less than one foot between the intervals in which the shallow and deeper wells are completed. The magnitude and direction of the vertical gradient are similar to previous monitoring events.

### **3.3 Laboratory Analyses and Results**

Groundwater samples were analyzed for halogenated volatile organics by EPA Method 601/8010, total chromium and cadmium by EPA Method 3005/6010, and cyanide by EPA Method 335.2. Results of the August 1996 analyses, in addition to historic analytical results for previous monitoring events, are presented in Table 3-3. Copies of the analytical laboratory reports and the chain-of-custody forms are presented in Appendix B.

### **3.3.1 Current Extent of VOC-Impacted Groundwater**

The August 1996 analytical results indicate that the VOCs currently present in groundwater beneath the site and vicinity primarily include 1,1-DCE, TCE, and PCE, with lower concentrations of 1,1,2-trichloroethane (1,1,2-TCA), 1,1-dichloroethane (1,1-DCA), 1,2-dichloroethane (1,2-DCA), chloroform (CFM), and methylene chloride (MC). However, the presence of MC is reported by the laboratory to be the result of laboratory contamination, as the trip blanks also contained this analyte. Therefore, MC has not been included in the total VOC concentrations discussed below and shown on Figure 3-2.

Only shallow wells MW-2, MW-7, MW-8, and MW-12, and deeper well MW-11, are presently impacted by VOCs at concentrations above regulatory limits. In the four shallow wells impacted, total VOC concentrations range from 67.6 µg/l in well MW-8 to 626.8 µg/l in well MW-12. In deeper well MW-11, the total VOC concentration is 61.8 µg/l. Upgradient wells MW-1 and MW-4 and crossgradient well MW-3 are not impacted by VOCs. The concentrations of 1,1-DCE, TCE, and PCE in the four shallow impacted wells, as well as 1,1-DCA and 1,2-DCA in shallow well MW-12, exceed regulatory standards. The concentrations of 1,1-DCE and TCE in the deeper well exceed regulatory standards.

Total VOC concentration contours were generated for the shallow interval using the August 1996 analytical data and are shown on Figure 3-2. Total VOC concentration contours are not generated for the deeper interval because only one well is completed in this interval. The August 1996 total VOC concentration contours indicate that the shallow plume of impacted groundwater beneath the site is oriented in a west-southwest direction, similar to the direction of groundwater flow. The plume extends offsite in the downgradient direction to the location of the Presto Food Products site. The axis of the plume appears to be through the area of onsite well MW-2 (382.6 µg/l total VOCs) and offsite well MW-12 (626.8 µg/l total VOCs), based on the presence of the highest concentrations of VOCs in these two wells. The plume is limited in lateral extent, as crossgradient well MW-3 is not impacted, and crossgradient well MW-8 (67.6 µg/l total VOCs) exhibits an order of magnitude decrease in total VOCs, relative to well MW-12. VOC concentrations attenuate with depth, as deeper well MW-11 (61.8 µg/l total VOCs) exhibits appreciably lower VOC concentrations than shallow wells MW-2 and MW-7 (382.6 and 158.8 µg/l total VOCs, respectively).

### **3.3.2 Historical VOC Concentration Trends**

The historic groundwater analytical results for the site indicate that there has been a decreasing trend in VOC concentrations since monitoring began in July 1986. In well MW-2, concentrations of 1,1,1-TCA have decreased to nondetectable levels from a maximum of 380 µg/l in July 1986, and TCE and PCE levels have decreased to 220 µg/l and 64 µg/l, respectively, from maximum levels of 710 µg/l and 770 µg/l, respectively. In well MW-7, TCE and PCE concentrations have decreased to 87 µg/l and 20 µg/l, respectively, from maximum levels of 456 µg/l and 160 µg/l, respectively, in 1987. Similarly, the majority of the historically detected

VOCs in shallow well MW-8 and deeper well MW-11 are now at nondetectable levels; only 1,1-DCE and TCE in both of these wells, in addition to PCE in well MW-8, are currently at levels that exceed the regulatory standards (see Table 3-3). VOCs have been absent in wells MW-1, MW-3 and MW-4 since monitoring began, with the exception of several isolated occurrences when VOCs were detected at low concentrations that were generally below regulatory standards (see Table 3-3).

Although VOC concentrations have decreased historically at the site, concentrations during the past year have remained at generally stable levels. Total and individual VOC concentrations have shown little variation since mid-1995.

### **3.3.3 Current Metals and Cyanide Results**

The August 1996 analytical results indicate that cyanide and chromium are currently present in groundwater beneath the Monadnock site and vicinity; cadmium is currently not present at detectable levels. Chromium is present at detectable levels in three wells (MW-2, MW-7, and MW-12) at concentrations ranging from 30.4 µg/l to 60.8 µg/l; only the concentration in well MW-2 (60.8 µg/l) exceeds the regulatory standard of 50 µg/l. Cyanide is present in three wells (MW-2, MW-7, and MW-12) at concentrations ranging from 0.25 to 0.37 mg/l; there is currently no established regulatory standard for cyanide.

### **3.3.4 Historical Metals and Cyanide Results**

Historic metals and cyanide concentrations for the site are available only since August 1994. These data indicate that cadmium has been detected at the site on only one occasion (August 1994), and was present in only three wells (MW-3, MW-7, and MW-8) at concentrations below the regulatory standard (10 µg/l).

Historic chromium results have been variable. In addition to the three wells that currently (August 1996) exhibit detectable chromium levels, the remaining five wells have also indicated the presence of chromium during one or more previous monitoring events. However, only well MW-2 has exhibited chromium levels that exceed the regulatory standard, with the exception of the August 1994 chromium results for wells MW-7 and MW-8.

Historic cyanide results indicate that wells MW-2, MW-7, and MW-12 have previously had detectable cyanide concentrations, although the current concentrations are below the historic maximum. In addition, well MW-4 was also previously impacted by cyanide in March 1995.

## **4.0 QUALITY ASSURANCE/QUALITY CONTROL**

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Field and laboratory quality assurance/quality control (QA/QC) procedures were employed during the August 1996 monitoring event, as during the previous compliance monitoring events, to document that the sampling results meet accepted QA/QC standards. The QA/QC procedures included 1) collecting and analyzing field samples to assess field QA/QC procedures, 2) preparing and analyzing laboratory samples to assess the performance of the analytical laboratory, and 3) conducting data validation in accordance with the protocols described below. Additional procedures employed in the field for QA/QC purposes included sequencing the sampling in such a manner that the wells with the lowest levels of contamination were sampled prior to those with the highest levels.

QA/QC samples collected or prepared for the August 1996 sampling event are listed in Table 4-1. The QA/QC samples collected in the field included two equipment blanks and one duplicate sample. The QA/QC samples prepared by the analytical laboratory included two trip blanks and one duplicate sample, in addition to numerous method blanks, matrix spike and matrix spike duplicates, and laboratory control samples. Table 4-1 contains a description of the collection and/or preparation procedures for each type of QA/QC sample.

### **4.1 Data Validation**

Laboratory results for the August 1996 monitoring event were reviewed in accordance with U.S. Environmental Protection Agency (EPA) guidelines for data validation (National Functional Guidelines for Organic Data Review, June 1991). The data validation process consisted of reviewing the laboratory results for the following parameters: 1) completeness of the data package, 2) compliance with EPA-required holding times, 3) surrogate recovery results for each well sample, 4) agreement of dilution factors with reported detection limits, 5) presence or absence of analytes in the equipment, trip, and method blanks, 6) percent recovery and relative percent difference results for matrix spike and matrix spike duplicate analyses, and 7) percent recovery results for laboratory control samples.

Based on guidance provided in the EPA guidelines, sample analytical data may be qualified as "J" (estimated), "UJ" (not detected-estimated), or "R" (rejected). Review of the laboratory data package for the August 1996 analyses indicated that no sample data required qualification during this sampling event.

Results of the data validation indicated that the laboratory data packages were complete, no analysis holding times were exceeded, surrogate recovery results for each well sample were within acceptable limits, and reported detection limits were consistent with the sample dilution factors. Additional data validation results are discussed in Section 4.2.

#### **4.2 QA/QC Sample Analysis Results**

The results of the QA/QC sample analyses for the August 1996 monitoring event are presented in Table 4-2. These results indicate that methylene chloride was detected in both trip blanks that accompanied the sample vials during transport to and from the field. The results also indicate that methylene chloride was detected in all eight well samples as well as one duplicate and one equipment blank. Methylene chloride is a common laboratory contaminant, and it has been verified that the methylene chloride detected in the samples is a result of laboratory contamination.

RPDs for the duplicate samples were within acceptable limits. The laboratory method blank results indicate that no detectable concentrations of VOCs, cadmium, chromium, or cyanide were present. The results of the matrix spike and matrix spike duplicate (MS/MSD) pairs for VOCs all indicate that percent recoveries and RPDs were within acceptable limits. The percent recoveries for laboratory control samples were also within acceptable limits.

## 5.0 SUMMARY

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During the August 1996 semiannual monitoring event at the Monadnock site, the eight monitoring wells at the site and vicinity were included in the sampling program. Water levels were monitored in seven of the eight wells (MW-2 was excluded), and groundwater samples were collected from the eight wells and analyzed for VOCs, chromium, cadmium, and cyanide.

The results of the August 1996 monitoring event indicate that water-level elevations continue to demonstrate a west-southwesterly direction of groundwater flow. A slight downward vertical hydraulic gradient was also indicated by the August water-level data, similar to previous events.

The August 1996 analytical results indicate that the shallow plume of VOC-impacted groundwater beneath the site is oriented in a west-southwesterly direction. The plume appears to be limited in lateral extent (crossgradient) and extends offsite in the downgradient direction to the Presto Food Products site.

The August 1996 analytical results are consistent with the decreasing trend in groundwater VOC concentrations that has been observed at the site since monitoring began in 1986, although concentrations during the past year have remained at generally stable levels. The concentrations of TCE, PCE, and 1,1-DCE continue to exceed regulatory standards in shallow wells MW-2, MW-7, MW-8, and MW-12. Well MW-12 also contains two other VOCs at concentrations above regulatory standards. Deeper well MW-11 presently contains TCE and 1,1-DCE at concentrations that exceed regulatory standards.

The results of metals and cyanide analyses conducted during the August 1996 monitoring event indicate that chromium and cyanide are present in groundwater beneath the site and vicinity. Chromium concentrations exceed the regulatory standard in only one well (MW-2). There is no established regulatory standard for cyanide, which is present in one onsite well (MW-2) and two offsite wells (MW-7 and MW-12).

## **TABLES**

- 3-1 Field Parameters at Completion of Purgung
- 3-2 Historical Water-Level Elevation Measurements
- 3-3 Historical Groundwater Analytical Results
- 4-1 Quality Assurance/Quality Control Samples - August 1996 Compliance Monitoring
- 4-2 Quality Assurance/Quality Control Sample Results - August 1996 Compliance Monitoring

**TABLE 3-1**  
**FIELD PARAMETERS AT COMPLETION OF PURGING**

WELL NUMBER	DATE	pH	SPECIFIC CONDUCTIVITY ( $\mu\text{mhos}/\text{cm}$ )	TEMPERATURE (°F)
MW-1	8/5/96	6.92	1301	78.1
MW-2	NA	NA	NA	NA
MW-3	8/5/96	6.86	1121	72.9
MW-4	8/6/96	7.01	1120	74.0
MW-7	8/6/96	7.12	1049	76.9
MW-8	8/6/96	6.82	1103	76.2
MW-11	8/6/96	6.99	931	72.8
MW-12	8/5/96	6.76	991	72.1

MW-2 was not purged as it is currently being used as an extraction well.

MW-3 was bailed dry @ 17 gallons.

MW-4 was bailed dry @ 20 gallons.

**TABLE 3-2**  
**HISTORICAL WATER-LEVEL ELEVATION MEASUREMENTS**

Well Number	Date Measured	Depth to Water (feet below top of casing)	Top of Casing Elevation <sup>(a)</sup> (feet, MSL)	Water Surface Elevation <sup>(a)</sup> (feet, MSL)
MW-1	Jun-94	32.27	412.68	380.41
	Aug-94	32.49		380.19
	Mar-95	31.82		380.86
	Aug-95	31.55		381.13
	Feb-96	32.57		380.11
	Aug-96	32.70		379.98
MW-2	Jun-94	30.25	408.01	377.76
	Aug-94	30.55		377.46
	Mar-95	29.73		378.28
	Aug-95	29.84		378.17
	Feb-96	NM		NA
	Aug-96	NM		NA
MW-3	Jun-94	30.21	408.52	378.31
	Aug-94	30.74		377.78
	Mar-95	29.86		378.66
	Aug-95	29.94		378.58
	Feb-96	30.89		377.63
	Aug-96	31.05		377.47
MW-4	Jun-94	32.80	412.95	380.15
	Aug-94	32.99		379.96
	Mar-95	32.28		380.67
	Aug-95	32.04		380.91
	Feb-96	33.05		379.90
	Aug-96	33.17		379.78
MW-7	Jun-94	31.35	409.16	377.81
	Aug-94	31.71		377.45
	Mar-95	31.03		378.13
	Aug-95	30.98		378.18
	Feb-96	32.06		377.10
	Aug-96	32.11		377.05
MW-8	Jun-94	31.25	409.00	377.75
	Aug-94	31.54		377.46
	Mar-95	30.95		378.05
	Aug-95	30.75		378.25
	Feb-96	31.66		377.34
	Aug-96	31.78		377.22

**TABLE 3-2**  
**HISTORICAL WATER-LEVEL ELEVATION MEASUREMENTS**

Well Number	Date Measured	Depth to Water (feet below top of casing)	Top of Casing Elevation <sup>(a)</sup> (feet, MSL)	Water Surface Elevation <sup>(a)</sup> (feet, MSL)
MW-11	Jun-94	31.59	408.93	377.34
	Aug-94	32.07		376.86
	Mar-95	31.26		377.67
	Aug-95	31.28		377.65
	Feb-96	32.13		376.80
	Aug-96	32.35		376.58
MW-12	Aug-95	30.50	406.91	376.41
	Feb-96	30.70		376.21
	Aug-96	30.95		375.96

<sup>(a)</sup> Elevations relative to mean sea level (MSL)

NM - Not Measured

NA - Not Analyzed

TABLE 3-3

## HISTORICAL GROUNDWATER ANALYTICAL RESULTS

Well Number	1,1,1-TCA (µg/l)	1,1,2-TCA (µg/l)	1,1-DCA (µg/l)	1,1-DCE (µg/l)	1,2-DCA (µg/l)	CFM (µg/l)	PCE (µg/l)	TCE (µg/l)	Cadmium (µg/l)	Chromium (µg/l)	Cyanide (mg/l)
Drinking Water Standard	200	32	5	6	0.5	NE	5	5	10	50	NE
<b>MW-1</b>											
Jul-86	<25	NA	NA	NA	NA	NA	<25	<25	NA	NA	NA
Sep-86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nov-86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Feb-87	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mar-87	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sep-87	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Feb-88	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Jan-89	ND	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA
Jun-89	ND	NA	NA	ND	NA	NA	ND	ND	NA	NA	NA
Jan-90	ND	NA	NA	ND	NA	NA	1.3	ND	NA	NA	NA
Jun-94	<1	<1	<1	<1	<1	<1	<1	<1	NA	NA	NA
Aug-94	<1	<1	<1	<1	<1	<1	<1	<1	<1	7.7	<0.01
Mar-95	<1	<1	<1	<1	<1	<1	<1	<1	<5	<10	<0.01
Aug-95	<1	<1	<1	1.5	<1	<1	<1	<1	<5	<10	<0.1
Feb-96	<1	<1	<1	<1	<1	<1	<1	<1	<5	<10	<0.2
Aug-96	<1	<1	<1	<1	<1	<1	<1	<1	<5	<10	<0.01
<b>MW-2</b>											
Jul-86	380	NA	NA	NA	NA	NA	310	710	NA	NA	NA
Sep-86	180	NA	NA	NA	NA	NA	600	560	NA	NA	NA
Nov-86	350	NA	NA	NA	NA	NA	770	710	NA	NA	NA
Feb-87	77	NA	NA	NA	NA	NA	190	620	NA	NA	NA
Mar-87	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sep-87	12	NA	NA	NA	NA	NA	102	182	NA	NA	NA
Feb-88	25	NA	NA	NA	NA	NA	78	102	NA	NA	NA
Jan-89	ND	NA	NA	NA	NA	NA	70	120	NA	NA	NA
Jun-89	ND	NA	NA	180	NA	NA	320	270	NA	NA	NA
Jan-90	7	NA	NA	840	NA	NA	410	460	NA	NA	NA
Jun-94	<1	21	10	120	3.3	2.4	130	590	NA	NA	NA
Aug-94	<1	19	8.6	160	3.4	1.3	100	390	<1	162	0.57
Mar-95	<1	17.5	8.3	176	4.1	2.5	102	330	<5	206	<0.01
Aug-95	<1	<1	5.8	82	2	2.1	12	170	<5	164	1.82
Feb-96	<2.5	3.5	<2.5	98	<2.5	<2.5	69	200	<5	85.6	1.60
Aug-96	<1	5.3	3.6	95	<1	1.1	53	220	<5	60.8	0.25
Aug-96 Dup	<1	5.5	3.7	97	1.2	1.2	54	220	NA	NA	NA

**TABLE 3-3**  
**HISTORICAL GROUNDWATER ANALYTICAL RESULTS**

Well Number	1,1,1-TCA (µg/l)	1,1,2-TCA (µg/l)	1,1-DCA (µg/l)	1,1-DCE (µg/l)	1,2-DCA (µg/l)	CFM (µg/l)	PCE (µg/l)	TCE (µg/l)	Cadmium (µg/l)	Chromium (µg/l)	Cyanide (mg/l)
Drinking Water Standard	200	32	5	6	0.5	NE	5	5	10	50	NE
<b>MW-3</b>											
Jul-86	<5	NA	NA	NA	NA	NA	<5	<5	NA	NA	NA
Sep-86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nov-86	6	NA	NA	NA	NA	NA	100	4	NA	NA	NA
Feb-87	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mar-87	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sep-87	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Feb-88	2	NA	NA	NA	NA	NA	6.2	2.6	NA	NA	NA
Jan-89	ND	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA
Jun-89	1	NA	NA	ND	NA	NA	6	2	NA	NA	NA
Jan-90	ND	NA	NA	ND	NA	NA	ND	2	NA	NA	NA
Jun-94	<1	<1	<1	<1	<1	<1	<1	<1	NA	NA	NA
Aug-94	<1	<1	<1	<1	<1	<1	<1	<1	1.4	14.3	<0.01
Mar-95	<1	<1	<1	<1	<1	<1	<1	<1	<5	23.9	<0.01
Aug-95	<1	<1	<1	1.4	<1	<1	<1	<1	<5	<10	<0.1
Feb-96	<1	<1	<1	<1	<1	<1	<1	<1	<5	<10	<0.2
Aug-96	<1	<1	<1	<1	<1	<1	<1	<1	<5	<10	<0.01
<b>MW-4</b>											
Jul-86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sep-86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nov-86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Feb-87	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mar-87	0.5	NA	NA	NA	NA	NA	1.6	1	NA	NA	NA
Sep-87	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Feb-88	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Jan-89	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Jun-89	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Jan-90	ND	NA	NA	ND	NA	NA	1.9	ND	NA	NA	NA
Jun-94	<1	<1	<1	<1	<1	<1	<1	<1	NA	NA	NA
Aug-94	<1	<1	<1	<1	<1	<1	<1	<1	<1	6.4	<0.01
Mar-95	<1	<1	<1	<1	<1	<1	<1	<1	<5	<10	2.67
Aug-95	<1	<1	<1	1.1	<1	<1	<1	<1	<5	<10	<0.1
Feb-96	<1	<1	<1	<1	<1	<1	<1	<1	<5	<10	<0.2
Aug-96	<1	<1	<1	<1	<1	<1	<1	<1	<5	<10	<0.01

**TABLE 3-3**  
**HISTORICAL GROUNDWATER ANALYTICAL RESULTS**

Well Number	1,1,1-TCA (µg/l)	1,1,2-TCA (µg/l)	1,1-DCA (µg/l)	1,1-DCE (µg/l)	1,2-DCA (µg/l)	CFM (µg/l)	PCE (µg/l)	TCE (µg/l)	Cadmium (µg/l)	Chromium (µg/l)	Cyanide (mg/l)
Drinking Water Standard	200	32	5	6	0.5	NE	5	5	10	50	NE
<b>MW-7</b>											
Jul-86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sep-86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nov-86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Feb-87	NA	NA	NA	NA	NA	NA	NA	NA	NA	N.A.	NA
Mar-87	48	NA	NA	NA	NA	NA	81	456	NA	NA	NA
Sep-87	56	NA	NA	NA	NA	NA	93	200	NA	NA	NA
Feb-88	8.2	NA	NA	NA	NA	NA	74	152	NA	NA	NA
Jan-89	ND	NA	NA	NA	NA	NA	150	200	NA	NA	NA
Jun-89	50	NA	NA	42	NA	NA	60	66	NA	NA	NA
Jan-90	1.6	NA	NA	440	NA	NA	160	400	NA	NA	NA
Jun-94	<1	2.8	<1	40	<1	1.8	42	280	NA	NA	NA
Aug-94	<1	17	6.2	140	1.7	2.4	60	310	1.3	115	0.76
Mar-95	<1	4.5	<1	66	<1	<1	28	145	<5	49.6	0.14
Aug-95	<1	<1	<1	43	<1	<1	1.9	130	<5	26.5	0.025
Feb-96	<1	<1	<1	36	<1	<1	18	120	<5	36.3	0.37
Aug-96	<1	4.5	1.3	46	<1	<1	20	87	<5	38.2	0.30
<b>MW-8</b>											
Jul-86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sep-86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nov-86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Feb-87	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mar-87	32	NA	NA	NA	NA	NA	110	180	NA	NA	NA
Sep-87	3	NA	NA	NA	NA	NA	27	47	NA	NA	NA
Feb-88	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Jan-89	ND	NA	NA	NA	NA	NA	80	90	NA	NA	NA
Jun-89	30	NA	NA	180	NA	NA	320	400	NA	NA	NA
Jan-90	ND	NA	NA	100	NA	NA	56	160	NA	NA	NA
Jun-94	<1	<1	<1	16	<1	<1	6.8	34	NA	NA	NA
Aug-94	<1	<1	9.4	<1	<1	<1	5.5	22	4.8	135	<0.01
Mar-95	<1	<1	<1	11.7	<1	<1	3.3	18.8	<5	20.4	<0.01
Aug-95	<1	<1	<1	7.9	<1	<1	<1	19	<5	14.4	<0.1
Feb-96	<1	<1	<1	17	<1	<1	11	35	<5	20.5	<0.2
Aug-96	<1	<1	1.6	16	<1	<1	11	39	<5	<10	<0.01

**TABLE 3-3**  
**HISTORICAL GROUNDWATER ANALYTICAL RESULTS**

Well Number	1,1,1-TCA (µg/l)	1,1,2-TCA (µg/l)	1,1-DCA (µg/l)	1,1-DCE (µg/l)	1,2-DCA (µg/l)	CFM (µg/l)	PCE (µg/l)	TCE (µg/l)	Cadmium (µg/l)	Chromium (µg/l)	Cyanide (mg/l)
Drinking Water Standard	200	32	5	6	0.5	NE	5	5	10	50	NE
<b>MW-11</b>											
Jul-86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sep-86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nov-86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Feb-87	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mar-87	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sep-87	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Feb-88	ND	NA	NA	NA	NA	NA	ND	26	NA	NA	NA
Jan-89	ND	NA	NA	NA	NA	NA	200	20	NA	NA	NA
Jun-89	ND	NA	NA	50	NA	NA	10	270	NA	NA	NA
Jan-90	ND	NA	NA	231	NA	NA	5.5	50	NA	NA	NA
Jun-94	<1	<1	<1	<1	<1	1.8	7	86	NA	NA	NA
Aug-94	<1	<1	16	<1	<1	<1	4.7	49	<1	13	<0.01
Mar-95	<1	<1	<1	20.3	<1	<1	4.1	59.6	<5	13.1	<0.01
Aug-95	<1	<1	<1	12	<1	<1	<1	43	<5	13.3	<0.01
Feb-96	<1	<1	<1	12	<1	<1	3.8	40	<5	<10	<0.2
Aug-96	<1	<1	<1	12	<1	<1	4.8	45	<5	<10	<0.01
<b>MW-12</b>											
Aug-95	<1	<1	6.7	250	7	4.1	13	540	<5	25.6	0.502
Feb-96	<5	<5	<5	230	<5	<5	60	380	<5	37.5	0.38
Feb-96 Dup	<5	<5	<5	210	<5	<5	57	360	NA	N.A.	NA
Aug-96	<1	9.2	5.2	210	4.5	2.9	65	330	<5	30.4	0.37

Drinking water standards are Maximum Contaminant Levels (MCLs) as established by the United States Environmental Protection Agency or Drinking Water Action Levels as established by the California Environmental Protection Agency.

NA - Not Analyzed

ND - Not Detected

NE - Drinking water standard (MCL or Action Level) has not been established.

< - Not detected with the detection limit.

1,1-DCE - 1,1-Dichloroethene

1,1,2-TCA - 1,1,2-Trichloroethane

1,1-DCA - 1,1-Dichloroethane

CFM - Chloroform

1,2-DCA - 1,2-Dichloroethane

PCE - Tetrachloroethene

1,1,1-TCA - 1,1,1-Trichloroethane

TCE - Trichloroethene

**TABLE 4-1**

**QUALITY ASSURANCE/QUALITY CONTROL SAMPLES  
AUGUST 1996 COMPLIANCE MONITORING**

Sample Type	Analysis Date	Description
<b>Field QA/QC Samples</b>		
<b>Equipment Blanks</b>		
M0080596-04 (EPA 8010)	8/9/96	Source water for equipment decontamination, collected after pouring through cleaned bailer following sampling of wells MW-12 and MW-8.
M0080796-26 (EPA 8010)	8/18/96	
<b>Laboratory QA/QC Samples</b>		
<b>Trip Blanks</b>		
M0080696-11 (EPA 8010)	8/18/96	Laboratory water blank that accompanies sample vials into the field (remains unopened) and is analyzed in same manner as the monitor well water samples.
M0080796-22 (EPA 8010)	8/18/96	
<b>Method Blanks</b>		
MBLK1W VAH117B (EPA 8010)	8/9/96	Laboratory water blank that undergoes same laboratory preparation procedures as the monitor well water samples.
MBLK1W VAH197B (EPA 8010)	8/18/96	
MBLK2W VAH207B (EPA 8010)	8/19/96	
MBLK1W IPH005WB (EPA 3005/6010)	8/14/96	
MBLK1W CNH003WB (EPA 335.2)	8/19/96	
<b>Duplicate Samples</b>		
M0080696-15 (EPA 8010)	8/18/96	Duplicate sample that is analyzed in the same manner as the monitor well sample.
CA00012 (EPA 3005/6010)	8/14/96	
<b>Matrix Spike Samples</b>		
SP-15 (EPA 8010)	8/9/96	Matrix Spike (MS) is a monitor well sample which is "spiked" with solution of known concentration and then analyzed in same manner as the "unspiked" well samples.
M0080696-05 (EPA 8010)	8/18/96	
CA00012 (EPA 3005/6010)	8/14/96	Matrix spike duplicate (MSD) is a second spiked sample prepared from same sample aliquot as the matrix spike sample.

**TABLE 4-1**

**QUALITY ASSURANCE/QUALITY CONTROL SAMPLES  
AUGUST 1996 COMPLIANCE MONITORING**

Sample Type	Analysis Date	Description
<u>Laboratory Control Samples</u>		
LCS1W VAH117L (EPA 8010)	8/9/96	Prepared solution of known concentration that the laboratory uses as an equipment calibration check.
LCS1WD VAH117C (EPA 8010)	8/9/96	
LCS1W VAH197L (EPA 8010)	8/18/96	
LCS1WD VAH197C (EPA 8010)	8/18/96	
LCS1W IPH005WL (EPA 3005/6010)	8/14/96	
LCS1WD IPH005WC (EPA 3005/6010)	8/14/96	
LCS1W CNH003WL (EPA 335.2)	8/19/96	

**TABLE 4-2**

**QUALITY ASSURANCE/QUALITY CONTROL SAMPLE RESULTS**  
**AUGUST 1996 COMPLIANCE MONITORING**

<u>Sample Type</u>	<u>Results</u>		
<b>Field QA/QC Samples</b>			
<u>Equipment Blank</u>	<u>Parameter</u>	<u>Concentration</u>	
M0080596-04	EPA 8010	ND <sup>1</sup>	
M0080796-26	EPA 8010	5.8 <sup>2</sup>	
<b>Laboratory QA/QC Samples</b>			
<u>Trip Blank</u>	<u>Parameter</u>	<u>Concentration</u>	
M0080696-11	EPA 8010	ND	
M0080796-22	EPA 8010	ND	
<u>Method Blank</u>			
MBLK1W VAH117B	EPA 8010	ND	
MBLK1W VAH197B	EPA 8010	ND	
MBLK2W VAH207B	EPA 8010	ND	
MBLK1W IPH005WB	EPA 3005/6010	ND	
MBLK1W CNH003WB	EPA 335.2	ND	
<u>Sample/Duplicate</u>	<u>Parameter</u>	<u>Sample Concentration</u>	<u>Duplicate Concentration</u>
M0080696-12/15	EPA 8010		<u>RPD<sup>3</sup></u>
	1,1-DCE	95	2
	1,1-DCA	3.6	3
	Chloroform	1.1	9
	1,2-DCA	ND	200
	TCE	220	0
	1,1,2-TCA	5.3	4
	PCE	53	2
CA00012	EPA 3005/6010		
	Cadmium	ND	0
	Chromium	ND	0
	EPA 335.2		
	Cyanide	ND	0

TABLE 4-2

**QUALITY ASSURANCE/QUALITY CONTROL SAMPLE RESULTS  
AUGUST 1996 COMPLIANCE MONITORING**

<u>Sample Type</u>		<u>Results</u>		
		<u>Percent Recovery</u>		
<u>Spike Sample</u>	<u>Parameter</u>	<u>MS/MSD</u>	<u>RPD</u>	
SP-15	EPA 8010			
	1,1-DCE	104/94	10	
	TCE	95/88	8	
	Chlorobenzene	96/96	0	
M0080696-05	EPA 8010			
	1,1-DCE	109/111	2	
	TCE	111/108	3	
	Chlorobenzene	114/114	0	
CA00012	EPA 3005/6010			
	Cadmium	92/NA	NA	
	Chromium	91/NA	NA	
<u>Laboratory Control</u>		<u>LCS</u>	<u>LCS</u>	<u>Percent</u>
<u>Sample</u>	<u>Parameter</u>	<u>Result</u>	<u>True Value</u>	<u>Recovery</u>
LCS1W VAH117L	EPA 8010			
	1,1-DCE	51.20	50.00	102
	TCE	53.70	50.00	107
	Chlorobenzene	57.30	50.00	115
LCS1WD VAH117C	EPA 8010			
	1,1-DCE	49.50	50.00	99
	TCE	47.00	50.00	94
	Chlorobenzene	44.90	50.00	90
LCS1W VAH197L	EPA 8010			
	1,1-DCE	50.70	50.00	101
	TCE	51.10	50.00	102
	Chlorobenzene	51.30	50.00	103
LCS1WD VAH197C	EPA 8010			
	1,1-DCE	50.80	50.00	102
	TCE	52.50	50.00	105
	Chlorobenzene	51.30	50.00	103
LCS1W IPH005WL	EPA 3005/6010			
	Cadmium	960.66	1000.00	96
	Chromium	973.59	1000.00	97

**TABLE 4-2**

**QUALITY ASSURANCE/QUALITY CONTROL SAMPLE RESULTS  
AUGUST 1996 COMPLIANCE MONITORING**

<b>Sample Type</b>		<b>Results</b>		
<u>Laboratory Control</u>	<u>Sample</u>	<u>Parameter</u>	<u>LCS</u> <u>Result</u>	<u>LCS</u> <u>True Value</u>
LCS1WD IPH005WC	EPA 3005/6010	Cadmium	928.62	1000.00
		Chromium	945.62	1000.00
LCS1W CNH003WL	EPA 335.2	Cyanide	0.095 mg/L	0.10 mg/L
				95

<sup>1</sup> - ND indicates not detected at laboratory detection limit. All results are in units of  $\mu\text{g/l}$  unless otherwise noted.

<sup>2</sup> - Chloromethane was detected in the blank at the indicated concentration.

<sup>3</sup> - Relative percent difference calculated as:

$$\frac{(\text{Sample value} - \text{duplicate value})}{(\text{Sample value} + \text{duplicate value})/2} \times 100$$

MS - Matrix Spike

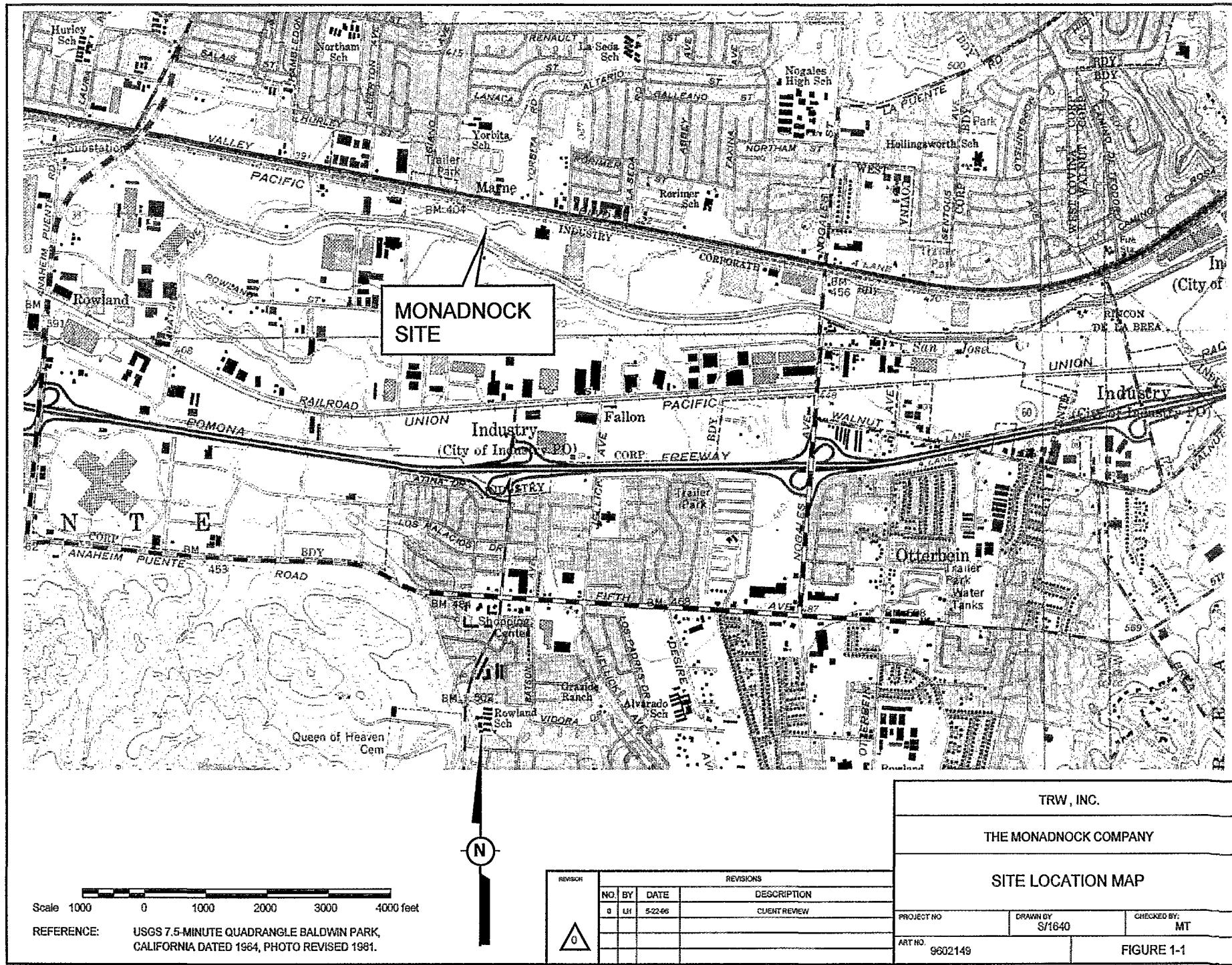
MSD - Matrix Spike Duplicate

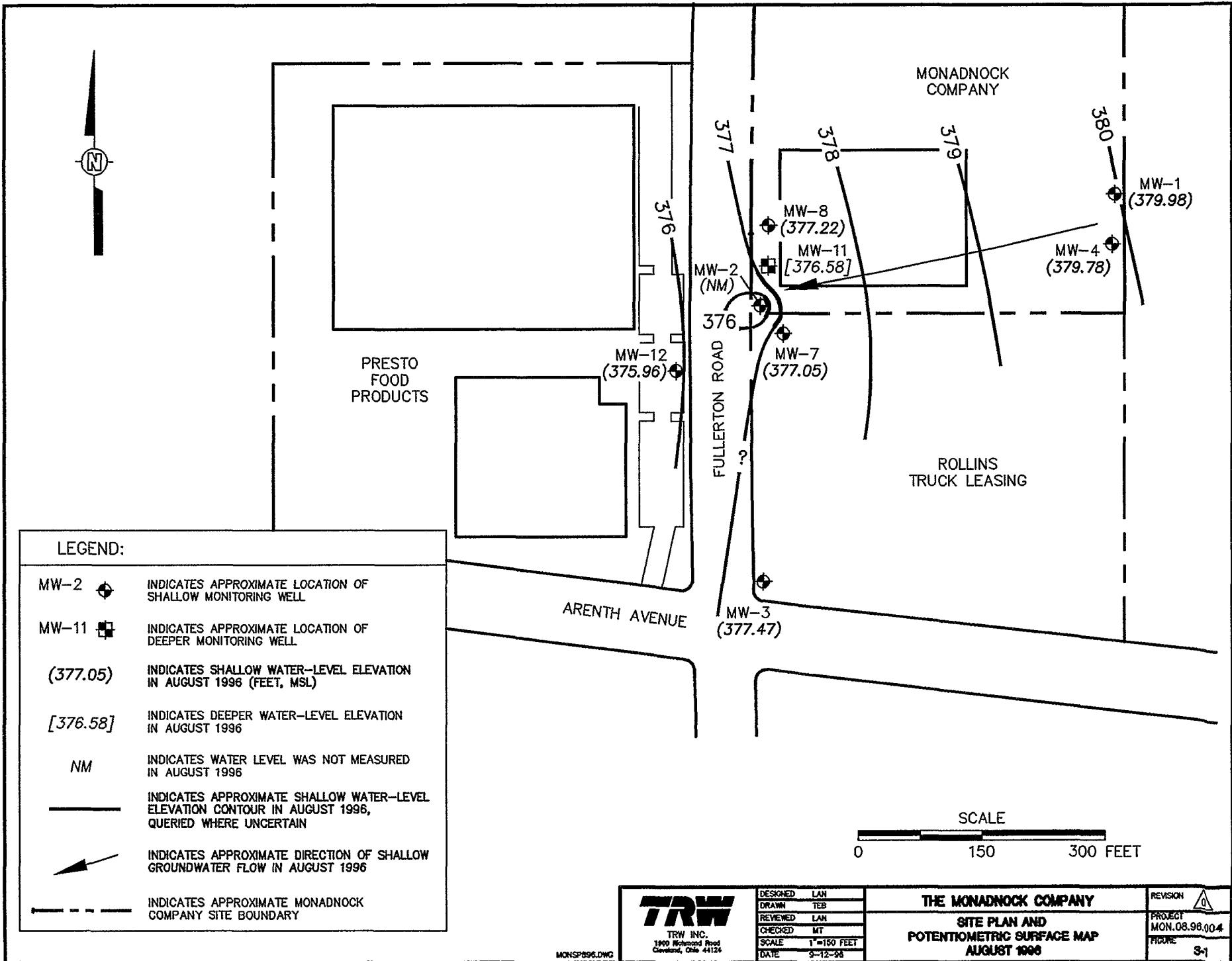
NA - Not Applicable

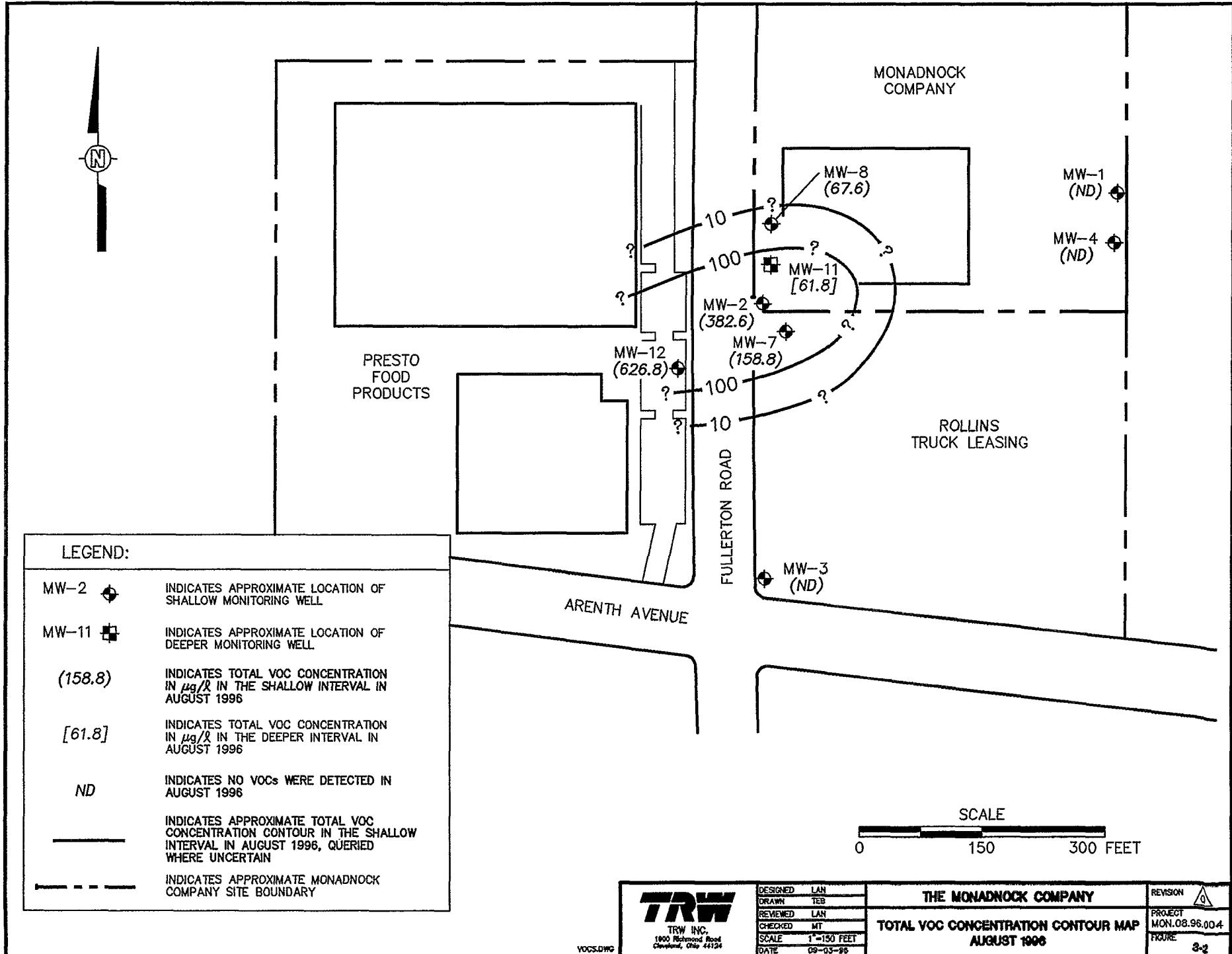
LCS - Laboratory Control Sample

## **FIGURES**

- 1-1 Site Location Map
- 3-1 Site Plan and Potentiometric Surface Map - August 1996
- 3-2 Total VOC Concentration Contour Map -August 1996







VOCS.DWG

DESIGNED	LAN
DRAWN	TEB
REVIEWED	LAN
CHECKED	MT
SCALE	1=150 FEET
DATE	09-03-96

THE MONADNOCK COMPANY	REVISION A
TOTAL VOC CONCENTRATION CONTOUR MAP	PROJECT MON.08.96.004
AUGUST 1996	FIGURE 3-2

## **APPENDIX A**

### **WATER SAMPLE LOGS**

## GROUNDWATER MONITORING / H<sub>2</sub>O LEVELS

Project: Monadnock

Date: 8-5-96 Collected By: BART WESSEL

Notes: \_\_\_\_\_

## **WATER SAMPLE LOG**

Project Name: Monadnock Date: 8-5-96  
Well No.: MW-1 Location: ON-SITE Collected By: BW

Well Purging Method: 3.5" PVC BAILER  
 Total Depth (ft.): 47.32 H<sub>2</sub>O Level (ft.): 32.70 Height of Water Column: 14.62  
 Decon. Method: 1 Wash - 3 Rinses Equipment Deconed Prior to Use: Yes  No   
 Casing volumes to be purged: 2" (0.16 gal./ft.) 4" (0.65 gal./ft.) 5" (1.02 gal./ft.) 6" (1.47 gal./ft.)

3 casing vol. x .65 gal./ft. x 14.62 ft. = 28.50 gal.

Total Purged (gallons): 29.0 No. of Casing Volumes: 3  
Well Sampling Method: 1.5" Teflon Bailer  
Decon. Method: 1 Wash - 3 Rinses

Sample Container	Sample ID#	Sample Analysis

**Observations/Notes/Calibration record:**

- Ph Meter Calibration: Zeroed to: \_\_\_\_\_ Spanned to: \_\_\_\_\_
  - Ambient Temp. 83 °  Clear, Sunny  Foggy, Partly Cloudy, Cloudy, Drizzle, Rain, Snow, Wind \_\_\_\_\_
  - Decon H<sub>2</sub>O changed out after this well: Yes  No

**Notes:** The following table summarizes the key findings from the study.

## WATER SAMPLE LOG

Project Name: Monadnock Date: 8-5-96  
Well No.: MW-3 Location: ROLLINS Collected By: BW

Well Purging Method: 3.5" PVC BAILER  
 Total Depth (ft.): 45.60 H<sub>2</sub>O Level (ft.): 31.05 Height of Water Column: 14.55  
 Decon. Method: 1 Wash - 3 Rinses Equipment Deconed Prior to Use: Yes  No   
 Casing volumes to be purged: 2" (0.16 gal./ft.) 4" (0.65 gal./ft.) 5" (1.02 gal./ft.) 6" (1.47 gal./ft.)

3 casing vol. x .65 gal./ft. x 14.55 ft. = 28.37 gal.

Total Purged (gallons): 17.0 No. of Casing Volumes: 1.79  
Well Sampling Method: 1.5" Teflon Bailer  
Decon. Method: 1 Wash - 3 Rinses

Sample Container	Sample ID#	Sample Analysis

**Observations/Notes/Calibration record:**

- Ph Meter Calibration: Zeroed to: \_\_\_\_\_ Spanned to: \_\_\_\_\_
  - Ambient Temp. 83 °  Clear, Sunny  Foggy, Partly Cloudy, Cloudy, Drizzle, Rain, Snow, Wind \_\_\_\_\_
  - Decon H<sub>2</sub>O changed out after this well: Yes  No \_\_\_\_\_

**Notes:** \_\_\_\_\_

## WATER SAMPLE LOG

Project Name: Monadnock Date: 8-6-96  
Well No.: MW-4 Location: CN-SITE Collected By: B.W.

Well Purging Method: 3.5" PVC BAILER  
 Total Depth (ft.): 49.35 H<sub>2</sub>O Level (ft.): 33.17 Height of Water Column: 16.18  
 Decon. Method: 1 Wash - 3 Rinses Equipment Deconed Prior to Use: Yes  No   
 Casing volumes to be purged: 2" (0.16 gal./ft.) 4" (0.65 gal./ft.) 5" (1.02 gal./ft.) 6" (1.47 gal./ft.)

3 casing vol. x .65 gal./ft. x 16.18 ft. = 31.55 gal.

Total Purged (gallons): 20.0 No. of Casing Volumes: 1.90  
Well Sampling Method: 1.5" Teflon Bailer  
Decon. Method: 1 Wash - 3 Rinses

Sample Container	Sample ID#	Sample Analysis

**Observations/Notes/Calibration record:**

- Ph Meter Calibration: Zeroed to: 7.0 Spanned to: 10.0
  - Ambient Temp. 76 ° Clear, Sunny, Foggy, Partly Cloudy, Cloudy, Drizzle, Rain, Snow, Wind \_\_\_\_\_
  - Decon H<sub>2</sub>O changed out after this well: Yes No

## Notes.

## WATER SAMPLE LOG

Project Name: Monadnock Date: 8-6-96  
Well No.: MW-7 Location: ROLLINS Collected By: BW

Well Purging Method: 3.5" PVC BAILER  
Total Depth (ft.): 56.22 H<sub>2</sub>O Level (ft.): 32.08 Height of Water Column: 24.14  
Decon. Method: 1 Wash - 3 Rinses Equipment Deconcd Prior to Use: Yes  No   
Casing volumes to be purged: 2" (0.16 gal./ft.) 4" (0.65 gal./ft.) 5" (1.02 gal./ft.) 6" (1.47 gal./ft.)

3 casing vol. x .65 gal./ft. x 24.14 ft. = 47.07 gal.

Total Purged (gallons): 48.0 No. of Casing Volumes: 3  
Well Sampling Method: 1.5" Teflon Bailer  
Decon. Method: 1 Wash - 3 Rinses

Sample Container	Sample ID#	Sample Analysis

**Observations/Notes/Calibration record:**

- Ph Meter Calibration: Zeroed to: \_\_\_\_\_ Spanned to: \_\_\_\_\_
  - Ambient Temp. 87 ° Clear, Sunny, Foggy, Partly Cloudy, Cloudy, Drizzle, Rain, Snow, Wind \_\_\_\_\_
  - Decon H<sub>2</sub>O changed out after this well: Yes  No

Notes: 

- 7 - 55 GAL. DRUMS OF PUAGE H<sub>2</sub>O & DECON H<sub>2</sub>O.
- 1 - 600' X 3/8" SPOOL OF TRIPLE BRAIDED ROPE.
- 8 TO 10 - 5 GAL. BOTTLES OF DISTILLED H<sub>2</sub>O, OR 1/2 AS MUCH USING 50% POTABLE H<sub>2</sub>O.

## WATER SAMPLE LOG

Project Name: Monadnock Date: 8-6-96  
Well No.: MW-8 Location: ON-SITE Collected By: BW

Well Purging Method: 3.5" PVC BAILER  
 Total Depth (ft.): 51.25 H<sub>2</sub>O Level (ft.): 31.76 Height of Water Column: 19.49  
 Decon. Method: 1 Wash - 3 Rinses Equipment Deconed Prior to Use: Yes  No   
 Casing volumes to be purged: 2" (0.16 gal./ft.) 4" (0.65 gal./ft.) 5" (1.02 gal./ft.) 6" (1.47 gal./ft.)

3 casing vol. x .65 gal./ft. x 19.49 ft. = 38.00 gal.

Total Purged (gallons): 40.0 No. of Casing Volumes: 3  
Well Sampling Method: 1.5" Teflon Bailer  
Decon. Method: 1 Wash - 3 Rinses

Sample Container	Sample ID#	Sample Analysis

**Observations/Notes/Calibration record:**

- Ph Meter Calibration: Zeroed to: \_\_\_\_\_ Spanned to: \_\_\_\_\_
  - Ambient Temp. 85 ° Clear, Sunny, Foggy, Partly Cloudy, Cloudy, Drizzle, Rain, Snow, Wind \_\_\_\_\_
  - Decon H<sub>2</sub>O changed out after this well: Yes \_\_\_\_\_ No ✓

**Notes:**

## WATER SAMPLE LOG

Project Name: Monadnock Date: 8-6-96  
Well No.: MW-11 Location: ON - S.TE Collected By: B.W.J.

Well Purging Method: 3.5" PVC BAILER  
 Total Depth (ft.): 96.25 H<sub>2</sub>O Level (ft.): 32.34 Height of Water Column: 63.91  
 Decon. Method: 1 Wash - 3 Rinses Equipment Deconed Prior to Use: Yes  No   
 Casing volumes to be purged: 2" (0.16 gal./ft.) 4" (0.65 gal./ft.) 5" (1.02 gal./ft.) 6" (1.47 gal./ft.)

3 casing vol. x .65 gal./ft. x 63.91 ft. = 124.62 gal.

Total Purged (gallons): 125.0 No. of Casing Volumes: 3  
Well Sampling Method: 1.5" Teflon Bailer  
Decon. Method: 1 Wash - 3 Rinses

Sample Container	Sample ID#	Sample Analysis

**Observations/Notes/Calibration record:** \_\_\_\_\_

- Ph Meter Calibration: Zeroed to: \_\_\_\_\_ Spanned to: \_\_\_\_\_
  - Ambient Temp. 80 ° Clear, Sunny, Foggy, Partly Cloudy, Cloudy, Drizzle, Rain, Snow, Wind \_\_\_\_\_
  - Decon H<sub>2</sub>O changed out after this well: Yes No

Notes: \_\_\_\_\_

## WATER SAMPLE LOG

Project Name: Monadnock Date: 8-5-96  
Well No.: MW-12 Location: PRESTO Collected By: BW

Well Purging Method: 3.5" PVC BAILER  
 Total Depth (ft.): 49.31 H<sub>2</sub>O Level (ft.): 30.95 Height of Water Column: 18.36  
 Decon. Method: 1 Wash - 3 Rinses Equipment Deconed Prior to Use: Yes  No  
 Casing volumes to be purged: 2" (0.16 gal./ft.) 4" (0.65 gal./ft.) 5" (1.02 gal./ft.) 6" (1.47 gal./ft.)

3 casing vol. x .65 gal./ft. x 18.36 ft. = 35.80 gal.

Total Purged (gallons): 36.0 No. of Casing Volumes: 3.0  
Well Sampling Method: 1.5" Teflon Bailer  
Decon. Method: 1 Wash - 3 Rinses

Sample Container	Sample ID#	Sample Analysis

**Observations/Notes/Calibration record:**

- Ph Meter Calibration: Zeroed to: 7.0 Spanned to: 10.0
  - Ambient Temp. 73 ° Clear, Sunny, Foggy, Partly Cloudy, Cloudy, Drizzle, Rain, Snow, Wind
  - Decon H<sub>2</sub>O changed out after this well: Yes  No

#### Notes:

## **APPENDIX B**

**ANALYTICAL LABORATORY REPORTS  
AND CHAIN-OF-CUSTODY FORMS**



# CKY incorporated Analytical Laboratories

Date: 09-12-1996  
CKY Batch No.: 96H026

Attn: Mo Tabon E2/4062

TRW  
One Space Park Dr.  
Redondo Beach CA 90278

Subject: Laboratory Report  
Project: Monadnock

-----  
Enclosed is the Laboratory report for samples received on 08/06/96. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

Sample ID	Control No.	Matrix	Analysis
M0080696-05	H026-01	Water	EPA 8010
M0080696-06	H026-02	Water	Metals
M0080696-07	H026-03	Water	Mercury
M0080696-08	H026-04	Water	Cyanide
M0080696-09	H026-05	Water	EPA 8010
M0080696-10	H026-06	Water	Metals
M0080696-11	H026-07	Water	Mercury
M0080696-12	H026-08	Water	EPA 8010
M0080696-13	H026-09	Water	Metals
M0080696-14	H026-10	Water	Cyanide
M0080696-15	H026-11	Water	EPA 8010

Low level of methylene chloride found in samples are most likely due to laboratory contamination.

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Kam Y. Pang, Ph.D.  
Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

**GK**

**C K Y incorporated  
Analytical Laboratories**

Date: 09-12-1996  
CKY Batch No.: 96H023

Attn: Mo Tabon E2/4062

TRW  
One Space Park Dr.  
Redondo Beach CA 90278

Subject: Laboratory Report  
Project: Monadnock

-----  
Enclosed is the Laboratory report for samples received on 08/05/96. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

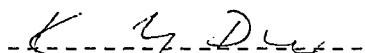
Sample ID	Control No.	Matrix	Analysis
M0080596-01	H023-01	Water	EPA 8010
M0080596-02	H023-02	Water	Metals
			Mercury
M0080596-03	H023-03	Water	Cyanide
M0080596-04	H023-04	Water	EPA 8010

Low level of methylene chloride found in samples are most likely due to laboratory contamination.

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

  
Kam Y. Pang, Ph.D.  
Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

**CKY**

**C K Y incorporated  
Analytical Laboratories**

Date: 09-12-1996  
CKY Batch No.: 96H029

Attn: Mo Tabon

TRW  
One Space Park Dr.  
Redondo Beach CA 90278

Subject: Laboratory Report  
Project: Monadnock

-----  
Enclosed is the Laboratory report for samples received on 08/07/96. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

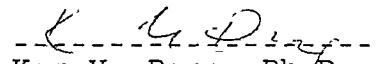
Sample ID	Control No.	Matrix	Analysis
M0080796-16	H029-01	Water	EPA 8010
M0080796-17	H029-02	Water	Metals
M0080796-18	H029-03	Water	Mercury
M0080796-19	H029-04	Water	Cyanide
M0080796-20	H029-05	Water	EPA 8010
M0080796-21	H029-06	Water	Metals
M0080796-22	H029-07	Water	Mercury
M0080796-23	H029-08	Water	Cyanide
M0080796-24	H029-09	Water	EPA 8010
M0080796-25	H029-10	Water	Metals
M0080796-26	H029-11	Water	Mercury
M0080796-27	H029-12	Water	EPA 8010
M0080796-28	H029-13	Water	Cyanide
M0080796-29	H029-14	Water	EPA 8010

Low level of methylene chloride found in samples are most likely due to laboratory contamination.

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

  
Kam Y. Pang, Ph.D.  
Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

EPA METHOD 8010  
HALOGENATED VOLATILE ORGANICS

CLIENT:	TRW	DATE COLLECTED:	08/06/96
PROJECT:	Monadnock	DATE RECEIVED:	08/06/96
BATCH NO.:	96H026	DATE EXTRACTED:	NA
SAMPLE ID:	M0080696-08 (MW-1)	DATE ANALYZED:	08/18/96
CONTROL NO.:	H026-04	MATRIX:	WATER
% MOISTURE:	NA	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/L)	RL (ug/L)
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl Chloride	ND	5
Bromomethane	ND	5
Chloroethane	ND	5
Trichlorodifluoromethane	ND	1
1,1-Dichloroethene	ND	1
Methylene Chloride	5.3	5
cis-1,2-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
1,1-Dichloroethane	ND	1
Chloroform	ND	1
1,1,1-Trichloroethane	ND	1
Carbon Tetrachloride	ND	1
1,2-Dichloroethane	ND	1
Trichloroethene	ND	1
1,2-Dichloropropane	ND	1
Dibromomethane	ND	1
Bromodichloromethane	ND	2
2-Chloroethyl vinyl ether	ND	1
trans-1,3-Dichloropropene	ND	1
cis-1,3-Dichloropropene	ND	1
1,1,2-Trichloroethane	ND	1
Tetrachloroethene	ND	1
1,3-Dichloropropane	ND	1
1,1,1,2-Tetrachloroethane	ND	1
Dibromochloromethane	ND	1
Ethylene Dibromide	ND	1
Chlorobenzene	ND	1
Bromoform	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorotoluene	ND	1
1,3-Dichlorobenzene	ND	2
1,4-Dichlorobenzene	ND	2
1,2-Dichlorobenzene	ND	2
Benzylchloride	ND	1
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Bromofluorobenzene	107	65-135

RL: Reporting Limit



CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave., Torrance, Calif. 90503 Tel. (310) 618-8889 Fax: (310) 618-0818

EPA METHOD 8010  
HALOGENATED VOLATILE ORGANICS

CLIENT:	TRW	DATE COLLECTED:	08/06/96
PROJECT:	Monadnock	DATE RECEIVED:	08/06/96
BATCH NO.:	96H026	DATE EXTRACTED:	NA
SAMPLE ID:	M0080696-12 (MW-2)	DATE ANALYZED:	08/18/96
CONTROL NO.:	H026-08	MATRIX:	WATER
% MOISTURE:	NA	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/L)	RL (ug/L)
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl Chloride	ND	5
Bromomethane	ND	5
Chloroethane	ND	5
Trichlorodifluoromethane	ND	1
1,1-Dichloroethene	95	1
Methylene Chloride	6.1	5
cis-1,2-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
1,1-Dichloroethane	3.6	1
Chloroform	1.1	1
1,1,1-Trichloroethane	ND	1
Carbon Tetrachloride	ND	1
1,2-Dichloroethane	ND	1
Trichloroethene	220*	2.5
1,2-Dichloropropane	ND	1
Dibromomethane	ND	1
Bromodichloromethane	ND	2
2-Chloroethyl vinyl ether	ND	1
trans-1,3-Dichloropropene	ND	1
cis-1,3-Dichloropropene	ND	1
1,1,2-Trichloroethane	5.3	1
Tetrachloroethene	53	1
1,3-Dichloropropane	ND	1
1,1,1,2-Tetrachloroethane	ND	1
Dibromochloromethane	ND	1
Ethylene Dibromide	ND	1
Chlorobenzene	ND	1
Bromoform	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorotoluene	ND	1
1,3-Dichlorobenzene	ND	2
1,4-Dichlorobenzene	ND	2
1,2-Dichlorobenzene	ND	2
Benzylchloride	ND	1
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Bromofluorobenzene	110	65-135

RL: Reporting Limit

\* : Analyzed on 08/19/96 at DF=2.5



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EPA METHOD 8010  
HALOGENATED VOLATILE ORGANICS

CLIENT:	TRW	DATE COLLECTED:	08/06/96
PROJECT:	Monadnock	DATE RECEIVED:	08/06/96
BATCH NO.:	96H026	DATE EXTRACTED:	NA
SAMPLE ID:	M0080696-15 (MW-2 Dup.)	DATE ANALYZED:	08/18/96
CONTROL NO.:	H026-11	MATRIX:	WATER
% MOISTURE:	NA	DILUTION FACTOR:	'1

PARAMETERS	RESULTS (ug/L)	RL (ug/L)
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl Chloride	ND	5
Bromomethane	ND	5
Chloroethane	ND	5
Trichlorofluoromethane	ND	1
1,1-Dichloroethene	97	1
Methylene Chloride	7.7	5
cis-1,2-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
1,1-Dichloroethane	3.7	1
Chloroform	1.2	1
1,1,1-Trichloroethane	ND	1
Carbon Tetrachloride	ND	1
1,2-Dichloroethane	1.2	1
Trichloroethene	220*	2.5
1,2-Dichloropropane	ND	1
Dibromomethane	ND	1
Bromodichloromethane	ND	2
2-Chloroethyl vinylether	ND	1
trans-1,3-Dichloropropene	ND	1
cis-1,3-Dichloropropene	ND	1
1,1,2-Trichloroethane	5.5	1
Tetrachloroethene	54	1
1,3-Dichloropropane	ND	1
1,1,1,2-Tetrachloroethane	ND	1
Dibromochloromethane	ND	1
Ethylene Dibromide	ND	1
Chlorobenzene	ND	1
Bromoform	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorotoluene	ND	1
1,3-Dichlorobenzene	ND	2
1,4-Dichlorobenzene	ND	2
1,2-Dichlorobenzene	ND	2
Benzylchloride	ND	1
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Bromofluorobenzene	118	65-135

RL: Reporting Limit

\* : Analyzed on 08/19/96 at DF=2.5



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EPA METHOD 8010  
HALOGENATED VOLATILE ORGANICS

CLIENT: TRW	DATE COLLECTED: 08/06/96
PROJECT: Monadnock	DATE RECEIVED: 08/06/96
BATCH NO.: 96H026	DATE EXTRACTED: NA
SAMPLE ID: M0080696-05 (MW-3)	DATE ANALYZED: 08/18/96
CONTROL NO.: H026-01	MATRIX: WATER
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	RESULTS (ug/L)	RL (ug/L)
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl Chloride	ND	5
Bromomethane	ND	5
Chloroethane	ND	5
Trichlorodifluoromethane	ND	1
1,1-Dichloroethene	ND	1
Methylene Chloride	5.2	5
cis-1,2-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
1,1-Dichloroethane	ND	1
Chloroform	ND	1
1,1,1-Trichloroethane	ND	1
Carbon Tetrachloride	ND	1
1,2-Dichloroethane	ND	1
Trichloroethene	ND	1
1,2-Dichloropropane	ND	1
Dibromomethane	ND	1
Bromodichloromethane	ND	2
2-Chloroethyl vinyl ether	ND	1
trans-1,3-Dichloropropene	ND	1
cis-1,3-Dichloropropene	ND	1
1,1,2-Trichloroethane	ND	1
Tetrachloroethene	ND	1
1,3-Dichloropropane	ND	1
1,1,1,2-Tetrachloroethane	ND	1
Dibromochloromethane	ND	1
Ethylene Dibromide	ND	1
Chlorobenzene	ND	1
Bromoform	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorotoluene	ND	1
1,3-Dichlorobenzene	ND	2
1,4-Dichlorobenzene	ND	2
1,2-Dichlorobenzene	ND	2
Benzylchloride	ND	1
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Bromofluorobenzene	120	65-135

RL: Reporting Limit



CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave., Torrance, Calif. 90503 Tel. (310) 618-8889 Fax: (310) 618-0818

EPA METHOD 8010  
HALOGENATED VOLATILE ORGANICS

CLIENT:	TRW	DATE COLLECTED:	08/07/96
PROJECT:	Monadnock	DATE RECEIVED:	08/07/96
BATCH NO.:	96H029	DATE EXTRACTED:	NA
SAMPLE ID:	M0080796-16 (MW-4)	DATE ANALYZED:	08/18/96
CONTROL NO.:	H029-01	MATRIX:	WATER
% MOISTURE:	NA	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/L)	RL (ug/L)
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl Chloride	ND	5
Bromomethane	ND	5
Chloroethane	ND	5
Trichlorofluoromethane	ND	1
1,1-Dichloroethene	ND	1
Methylene Chloride	12	5
cis-1,2-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
1,1-Dichloroethane	ND	1
Chloroform	ND	1
1,1,1-Trichloroethane	ND	1
Carbon Tetrachloride	ND	1
1,2-Dichloroethane	ND	1
Trichloroethene	ND	1
1,2-Dichloropropane	ND	1
Dibromomethane	ND	1
Bromodichloromethane	ND	2
2-Chloroethyl vinyl ether	ND	1
trans-1,3-Dichloropropene	ND	1
cis-1,3-Dichloropropene	ND	1
1,1,2-Trichloroethane	ND	1
Tetrachloroethene	ND	1
1,3-Dichloropropane	ND	1
1,1,1,2-Tetrachloroethane	ND	1
Dibromochloromethane	ND	1
Ethylene Dibromide	ND	1
Chlorobenzene	ND	1
Bromoform	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorotoluene	ND	1
1,3-Dichlorobenzene	ND	2
1,4-Dichlorobenzene	ND	2
1,2-Dichlorobenzene	ND	2
Benzylchloride	ND	1
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Bromofluorobenzene	109	65-135

RL: Reporting Limit



CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave., Torrance, Calif. 90503 Tel. (310) 618-8889 Fax: (310) 618-0818

EPA METHOD 8010  
HALOGENATED VOLATILE ORGANICS

CLIENT:	TRW	DATE COLLECTED:	08/07/96
PROJECT:	Monadnock	DATE RECEIVED:	08/07/96
BATCH NO.:	96H029	DATE EXTRACTED:	NA
SAMPLE ID:	M0080796-27 (MW-7)	DATE ANALYZED:	08/19/96
CONTROL NO.:	H029-12	MATRIX:	WATER
% MOISTURE:	NA	DILUTION FACTOR:	'1

PARAMETERS	RESULTS (ug/L)	RL (ug/L)
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl Chloride	ND	5
Bromomethane	ND	5
Chloroethane	ND	5
Trichlorodifluoromethane	ND	1
1,1-Dichloroethene	46	1
Methylene Chloride	18	5
cis-1,2-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
1,1-Dichloroethane	1.3	1
Chloroform	ND	1
1,1,1-Trichloroethane	ND	1
Carbon Tetrachloride	ND	1
1,2-Dichloroethane	ND	1
Trichloroethene	87	1
1,2-Dichloropropane	ND	1
Dibromomethane	ND	1
Bromodichloromethane	ND	2
2-Chloroethyl vinylether	ND	1
trans-1,3-Dichloropropene	ND	1
cis-1,3-Dichloropropene	ND	1
1,1,2-Trichloroethane	4.5	1
Tetrachloroethene	20	1
1,3-Dichloropropane	ND	1
1,1,1,2-Tetrachloroethane	ND	1
Dibromochloromethane	ND	1
Ethylene Dibromide	ND	1
Chlorobenzene	ND	1
Bromoform	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorotoluene	ND	1
1,3-Dichlorobenzene	ND	2
1,4-Dichlorobenzene	ND	2
1,2-Dichlorobenzene	ND	2
Benzylchloride	ND	1
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Bromofluorobenzene	106	65-135

RL: Reporting Limit



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EPA METHOD 8010  
HALOGENATED VOLATILE ORGANICS

CLIENT:	TRW	DATE COLLECTED:	08/07/96
PROJECT:	Monadnock	DATE RECEIVED:	08/07/96
BATCH NO.:	96H029	DATE EXTRACTED:	NA
SAMPLE ID:	M0080796-23 (MW-8)	DATE ANALYZED:	08/18/96
CONTROL NO.:	H029-08	MATRIX:	WATER
% MOISTURE:	NA	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/L)	RL (ug/L)
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl Chloride	ND	5
Bromomethane	ND	5
Chloroethane	ND	5
Trichlorofluoromethane	ND	1
1,1-Dichloroethene	16	1
Methylene Chloride	15	5
cis-1,2-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
1,1-Dichloroethane	1.6	1
Chloroform	ND	1
1,1,1-Trichloroethane	ND	1
Carbon Tetrachloride	ND	1
1,2-Dichloroethane	ND	1
Trichloroethene	39	1
1,2-Dichloropropane	ND	1
Dibromomethane	ND	1
Bromodichloromethane	ND	2
2-Chloroethyl vinylether	ND	1
trans-1,3-Dichloropropene	ND	1
cis-1,3-Dichloropropene	ND	1
1,1,2-Trichloroethane	ND	1
Tetrachloroethene	11	1
1,3-Dichloropropane	ND	1
1,1,1,2-Tetrachloroethane	ND	1
Dibromochloromethane	ND	1
Ethylene Dibromide	ND	1
Chlorobenzene	ND	1
Bromoform	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorotoluene	ND	1
1,3-Dichlorobenzene	ND	2
1,4-Dichlorobenzene	ND	2
1,2-Dichlorobenzene	ND	2
Benzylchloride	ND	1
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Bromofluorobenzene	111	65-135

RL: Reporting Limit



CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave., Torrance, Calif. 90503 Tel. (310) 618-8889 Fax: (310) 618-0818

EPA METHOD 8010  
HALOGENATED VOLATILE ORGANICS

CLIENT:	TRW	DATE COLLECTED:	08/07/96
PROJECT:	Monadnock	DATE RECEIVED:	08/07/96
BATCH NO.:	96H029	DATE EXTRACTED:	NA
SAMPLE ID:	M0080796-19 (MW-11)	DATE ANALYZED:	08/18/96
CONTROL NO.:	H029-04	MATRIX:	WATER
% MOISTURE:	NA	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/L)	RL (ug/L)
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl Chloride	ND	5
Bromomethane	ND	5
Chloroethane	ND	5
Trichlorodifluoromethane	ND	1
1,1-Dichloroethene	12	1
Methylene Chloride	12	5
cis-1,2-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
1,1-Dichloroethane	ND	1
Chloroform	ND	1
1,1,1-Trichloroethane	ND	1
Carbon Tetrachloride	ND	1
1,2-Dichloroethane	ND	1
Trichloroethene	45	1
1,2-Dichloropropane	ND	1
Dibromomethane	ND	1
Bromodichloromethane	ND	2
2-Chloroethyl vinyl ether	ND	1
trans-1,3-Dichloropropene	ND	1
cis-1,3-Dichloropropene	ND	1
1,1,2-Trichloroethane	ND	1
Tetrachloroethene	4.8	1
1,3-Dichloropropane	ND	1
1,1,1,2-Tetrachloroethane	ND	1
Dibromochloromethane	ND	1
Ethylene Dibromide	ND	1
Chlorobenzene	ND	1
Bromoform	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorotoluene	ND	1
1,3-Dichlorobenzene	ND	2
1,4-Dichlorobenzene	ND	2
1,2-Dichlorobenzene	ND	2
Benzylchloride	ND	1
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Bromofluorobenzene	103	65-135

RL: Reporting Limit



CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave., Torrance, Calif. 90503 Tel. (310) 618-8889 Fax: (310) 618-0818

EPA METHOD 8010  
HALOGENATED VOLATILE ORGANICS

CLIENT:	TRW	DATE COLLECTED:	08/05/96
PROJECT:	Monadnock	DATE RECEIVED:	08/05/96
BATCH NO.:	96H023	DATE EXTRACTED:	NA
SAMPLE ID:	M0080596-01 (MW-12)	DATE ANALYZED:	08/09/96
CONTROL NO.:	H023-01	MATRIX:	WATER
% MOISTURE:	NA	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/L)	RL (ug/L)
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl Chloride	ND	5
Bromomethane	ND	5
Chloroethane	ND	5
Trichlorofluoromethane	ND	1
1,1-Dichloroethene	210	1
Methylene Chloride	6.6	5
cis-1,2-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
1,1-Dichloroethane	5.2	1
Chloroform	2.9	1
1,1,1-Trichloroethane	ND	1
Carbon Tetrachloride	ND	1
1,2-Dichloroethane	4.5	1
Trichloroethene	330	1
1,2-Dichloropropane	ND	1
Dibromomethane	ND	1
Bromodichloromethane	ND	2
2-Chloroethyl vinylether	ND	1
trans-1,3-Dichloropropene	ND	1
cis-1,3-Dichloropropene	ND	1
1,1,2-Trichloroethane	9.2	1
Tetrachloroethene	65	1
1,3-Dichloropropane	ND	1
1,1,1,2-Tetrachloroethane	ND	1
Dibromochloromethane	ND	1
Ethylene Dibromide	ND	1
Chlorobenzene	ND	1
Bromoform	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorotoluene	ND	1
1,3-Dichlorobenzene	ND	2
1,4-Dichlorobenzene	ND	2
1,2-Dichlorobenzene	ND	2
Benzylchloride	ND	1
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Bromofluorobenzene	100	65-135

RL: Reporting Limit



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EPA METHOD 8010  
HALOGENATED VOLATILE ORGANICS

CLIENT:	TRW	DATE COLLECTED:	NA
PROJECT:	Monadnock	DATE RECEIVED:	NA
BATCH NO.:	96H023	DATE EXTRACTED:	NA
SAMPLE ID:	MBLK1W	DATE ANALYZED:	08/09/96
CONTROL NO.:	VAH117B	MATRIX:	WATER
% MOISTURE:	NA	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/L)	RL (ug/L)
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl Chloride	ND	5
Bromomethane	ND	5
Chloroethane	ND	5
Trichlorofluoromethane	ND	1
1,1-Dichloroethene	ND	1
Methylene Chloride	ND	5
cis-1,2-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
1,1-Dichloroethane	ND	1
Chloroform	ND	1
1,1,1-Trichloroethane	ND	1
Carbon Tetrachloride	ND	1
1,2-Dichloroethane	ND	1
Trichloroethene	ND	1
1,2-Dichloropropane	ND	1
Dibromomethane	ND	1
Bromodichloromethane	ND	2
2-Chloroethyl vinyl ether	ND	1
trans-1,3-Dichloropropene	ND	1
cis-1,3-Dichloropropene	ND	1
1,1,2-Trichloroethane	ND	1
Tetrachloroethene	ND	1
1,3-Dichloropropane	ND	1
1,1,1,2-Tetrachloroethane	ND	1
Dibromochloromethane	ND	1
Ethylene Dibromide	ND	1
Chlorobenzene	ND	1
Bromoform	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorotoluene	ND	1
1,3-Dichlorobenzene	ND	2
1,4-Dichlorobenzene	ND	2
1,2-Dichlorobenzene	ND	2
Benzylchloride	ND	1
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Bromofluorobenzene	97	65-135

RL: Reporting Limit



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CKY QUALITY CONTROL DATA  
MS/MSD ANALYSIS

CLIENT: TRW  
 PROJECT: Monadnock  
 METHOD: EPA 8010  
 MATRIX: WATER  
 % MOISTURE: NA

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BATCH NO.: 96H023  
 SAMPLE ID: SP-15  
 CONTROL NO.: H024-03

DATE RECEIVED: NA  
 DATE EXTRACTED: NA  
 DATE ANALYZED: 08/09/96

ACCESSION: 96H022 96H023 96H024

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	MS RSLT (ug/L)	MS % REC	SPIKE AMT (ug/L)	MSD RSLT (ug/L)	MSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
1,1-Dichloroethene	ND	50.00	52.10	104	50.00	46.90	94	11	65-135	30
Trichloroethene	ND	50.00	47.70	95	50.00	43.80	88	8	65-135	30
Chlorobenzene	ND	50.00	48.10	96	50.00	48.10	96	0	65-135	30

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SURROGATE PARAMETER	SPIKE AMT (ug/L)	MS RSLT (ug/L)	MS % REC	SPIKE AMT (ug/L)	MSD RSLT (ug/L)	MSD % REC	QC LIMIT %
Bromofluorobenzene	50.00	50.50	101	50.00	53.20	106	65-135



CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave., Torrance, Calif. 90503 Tel. (310) 613-8889 Fax: (310) 618-0818

CLIENT:	TRW	Monaehock	EPA 8010	LCS/LCD ANALYSIS										
PROJECT:	Monahock	MATRIX:	% MOISTURE:	NA										
METHOD:		METHOD:												
BATCH NO.:	96H023	SAMPLE ID:	VAM117L/C	DATE ANALYZED: 08/09/96										
ACCESSION:	96H022 96H023 96H024	CONTROL NO.:												
PARAMETER	BLANK RSLT	SPIKE AMT	BS RSLT	BS	SPIKE AMT	BS	SPIKE AMT	BS	BS	% REC	% REC	RPD	QC LIMIT	RPD LIMIT
1,1-Dichloroethene	ND	50.00	51.20	102	50.00	49.50	99	115	50.00	44.90	90	13	70-125	30
Trichloroethene	ND	50.00	53.70	107	50.00	47.00	94	13	50.00	47.20	94	24	70-125	30
Chlorobenzene	ND	50.00	57.30	102	50.00	47.00	94	13	50.00	47.20	94	24	70-125	30
Bromoform	ND	50.00	53.70	107	50.00	47.00	94	13	50.00	47.20	94	24	70-125	30
Surrogate Parameter														
	50.00													
		63.30												
			50.00											
				127										
					50.00									
						47.20								
							94							
								65-135						

EPA METHOD 8010  
HALOGENATED VOLATILE ORGANICS

CLIENT:	TRW	DATE COLLECTED:	08/05/96
PROJECT:	Monadnock	DATE RECEIVED:	08/05/96
BATCH NO.:	96H023	DATE EXTRACTED:	NA
SAMPLE ID:	M0080596-04 (Equip. Blank)	DATE ANALYZED:	08/09/96
CONTROL NO.:	H023-04	MATRIX:	WATER
% MOISTURE:	NA	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/L)	RL (ug/L)
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl Chloride	ND	5
Bromomethane	ND	5
Chloroethane	ND	5
Trichlorofluoromethane	ND	1
1,1-Dichloroethene	ND	1
Methylene Chloride	ND	5
cis-1,2-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
1,1-Dichloroethane	ND	1
Chloroform	ND	1
1,1,1-Trichloroethane	ND	1
Carbon Tetrachloride	ND	1
1,2-Dichloroethane	ND	1
Trichloroethene	ND	1
1,2-Dichloropropane	ND	1
Dibromomethane	ND	1
Bromodichloromethane	ND	2
2-Chloroethyl vinylether	ND	1
trans-1,3-Dichloropropene	ND	1
cis-1,3-Dichloropropene	ND	1
1,1,2-Trichloroethane	ND	1
Tetrachloroethene	ND	1
1,3-Dichloropropane	ND	1
1,1,1,2-Tetrachloroethane	ND	1
Dibromochloromethane	ND	1
Ethylene Dibromide	ND	1
Chlorobenzene	ND	1
Bromoform	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorotoluene	ND	1
1,3-Dichlorobenzene	ND	2
1,4-Dichlorobenzene	ND	2
1,2-Dichlorobenzene	ND	2
Benzylchloride	ND	1
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Bromofluorobenzene	87	65-135

RL: Reporting Limit



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EPA METHOD 8010  
HALOGENATED VOLATILE ORGANICS

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CLIENT:	TRW	DATE COLLECTED:	08/06/96
PROJECT:	Monadnock	DATE RECEIVED:	08/06/96
BATCH NO.:	96H026	DATE EXTRACTED:	NA
SAMPLE ID:	M0080696-11 (Trip Blank)	DATE ANALYZED:	08/18/96
CONTROL NO.:	H026-07	MATRIX:	WATER
% MOISTURE:	NA	DILUTION FACTOR:	1

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PARAMETERS	RESULTS (ug/L)	RL (ug/L)
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl Chloride	ND	5
Bromomethane	ND	5
Chloroethane	ND	5
Trichlorofluoromethane	ND	1
1,1-Dichloroethene	ND	1
Methylene Chloride	6.0	5
cis-1,2-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
1,1-Dichloroethane	ND	1
Chloroform	ND	1
1,1,1-Trichloroethane	ND	1
Carbon Tetrachloride	ND	1
1,2-Dichloroethane	ND	1
Trichloroethene	ND	1
1,2-Dichloropropane	ND	1
Dibromomethane	ND	1
Bromodichloromethane	ND	2
2-Chloroethyl vinyl ether	ND	1
trans-1,3-Dichloropropene	ND	1
cis-1,3-Dichloropropene	ND	1
1,1,2-Trichloroethane	ND	1
Tetrachloroethene	ND	1
1,3-Dichloropropane	ND	1
1,1,1,2-Tetrachloroethane	ND	1
Dibromochloromethane	ND	1
Ethylene Dibromide	ND	1
Chlorobenzene	ND	1
Bromoform	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorotoluene	ND	1
1,3-Dichlorobenzene	ND	2
1,4-Dichlorobenzene	ND	2
1,2-Dichlorobenzene	ND	2
Benzylchloride	ND	1
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Bromofluorobenzene	100	65-135

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RL: Reporting Limit



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EPA METHOD 8010  
HALOGENATED VOLATILE ORGANICS

CLIENT:	TRW	DATE COLLECTED:	NA
PROJECT:	Monadnock	DATE RECEIVED:	NA
BATCH NO.:	96H026	DATE EXTRACTED:	NA
SAMPLE ID:	MBLK1W	DATE ANALYZED:	08/18/96
CONTROL NO.:	VAH197B	MATRIX:	WATER
% MOISTURE:	NA	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/L)	RL (ug/L)
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl Chloride	ND	5
Bromomethane	ND	5
Chloroethane	ND	5
Trichlorodifluoromethane	ND	1
1,1-Dichloroethene	ND	1
Methylene Chloride	ND	5
cis-1,2-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
1,1-Dichloroethane	ND	1
Chloroform	ND	1
1,1,1-Trichloroethane	ND	1
Carbon Tetrachloride	ND	1
1,2-Dichloroethane	ND	1
Trichloroethene	ND	1
1,2-Dichloropropane	ND	1
Dibromomethane	ND	1
Bromodichloromethane	ND	2
2-Chloroethyl vinylether	ND	1
trans-1,3-Dichloropropene	ND	1
cis-1,3-Dichloropropene	ND	1
1,1,2-Trichloroethane	ND	1
Tetrachloroethene	ND	1
1,3-Dichloropropane	ND	1
1,1,1,2-Tetrachloroethane	ND	1
Dibromochloromethane	ND	1
Ethylene Dibromide	ND	1
Chlorobenzene	ND	1
Bromoform	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorotoluene	ND	1
1,3-Dichlorobenzene	ND	2
1,4-Dichlorobenzene	ND	2
1,2-Dichlorobenzene	ND	2
Benzylchloride	ND	1
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Bromofluorobenzene	105	65-135

RL: Reporting Limit



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EPA METHOD 8010  
HALOGENATED VOLATILE ORGANICS

CLIENT:	TRW	DATE COLLECTED:	NA
PROJECT:	Monadnock	DATE RECEIVED:	NA
BATCH NO.:	96H026	DATE EXTRACTED:	NA
SAMPLE ID:	MBLK2W	DATE ANALYZED:	08/19/96
CONTROL NO.:	VAH207B	MATRIX:	WATER
% MOISTURE:	NA	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/L)	RL (ug/L)
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl Chloride	ND	5
Bromomethane	ND	5
Chloroethane	ND	5
Trichlorofluoromethane	ND	1
1,1-Dichloroethene	ND	1
Methylene Chloride	ND	5
cis-1,2-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
1,1-Dichloroethane	ND	1
Chloroform	ND	1
1,1,1-Trichloroethane	ND	1
Carbon Tetrachloride	ND	1
1,2-Dichloroethane	ND	1
Trichloroethene	ND	1
1,2-Dichloropropane	ND	1
Dibromomethane	ND	1
Bromodichloromethane	ND	2
2-Chloroethyl vinyl ether	ND	1
trans-1,3-Dichloropropene	ND	1
cis-1,3-Dichloropropene	ND	1
1,1,2-Trichloroethane	ND	1
Tetrachloroethene	ND	1
1,3-Dichloropropane	ND	1
1,1,1,2-Tetrachloroethane	ND	1
Dibromochloromethane	ND	1
Ethylene Dibromide	ND	1
Chlorobenzene	ND	1
Bromoform	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorotoluene	ND	1
1,3-Dichlorobenzene	ND	2
1,4-Dichlorobenzene	ND	2
1,2-Dichlorobenzene	ND	2
Benzylchloride	ND	1
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Bromofluorobenzene	113	65-135

RL: Reporting Limit



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CKY QUALITY CONTROL DATA  
MS/MSD ANALYSIS

CLIENT: TRW  
 PROJECT: Monadnock  
 METHOD: EPA 8010  
 MATRIX: WATER  
 % MOISTURE: NA

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BATCH NO.: 96H026 DATE RECEIVED: 08/06/96  
 SAMPLE ID: M0080696-05 DATE EXTRACTED: NA  
 CONTROL NO.: H026-01 DATE ANALYZED: 08/18/96

ACCESSION: 96H023 96H024 96H026 96H029

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	MS RSLT (ug/L)	MS % REC	SPIKE AMT (ug/L)	MSD RSLT (ug/L)	MSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
1,1-Dichloroethene	ND	50.00	54.40	109	50.00	55.30	111	2	65-135	30
Trichloroethene	ND	50.00	55.70	111	50.00	54.10	108	3	65-135	30
Chlorobenzene	ND	50.00	57.20	114	50.00	57.00	114	0	65-135	30

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SURROGATE PARAMETER	SPIKE AMT (ug/L)	MS RSLT (ug/L)	MS % REC	SPIKE AMT (ug/L)	MSD RSLT (ug/L)	MSD % REC	QC LIMIT %
Bromofluorobenzene	50.00	61.00	122	50.00	60.00	120	65-135



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CKY QUALITY CONTROL DATA  
LCS/LCD ANALYSIS

CLIENT: TRW  
 PROJECT: Monadnock  
 METHOD: EPA 8010  
 MATRIX: WATER  
 % MOISTURE: NA

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BATCH NO.: 96H026 DATE RECEIVED: NA  
 SAMPLE ID: LCS1W/LCS1WD DATE EXTRACTED: NA  
 CONTROL NO.: VAH197L/C DATE ANALYZED: 08/18/96

ACCESSION: 96H023 96H024 96H026 96H029

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
1,1-Dichloroethene	ND	50.00	50.70	101	50.00	50.80	102	0	70-125	30
Trichloroethene	ND	50.00	51.10	102	50.00	52.50	105	3	70-125	30
Chlorobenzene	ND	50.00	51.30	103	50.00	51.30	103	0	70-125	30

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SURROGATE PARAMETER	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	QC LIMIT %
Bromofluorobenzene	50.00	60.80	122	50.00	57.30	115	65-135



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EPA METHOD 8010  
HALOGENATED VOLATILE ORGANICS

CLIENT:	TRW	DATE COLLECTED:	08/07/96
PROJECT:	Monadnock	DATE RECEIVED:	08/07/96
BATCH NO.:	96H029	DATE EXTRACTED:	NA
SAMPLE ID:	M0080796-26 (Equip. Blank)	DATE ANALYZED:	08/18/96
CONTROL NO.:	H029-11	MATRIX:	WATER
% MOISTURE:	NA	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/L)	RL (ug/L)
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl Chloride	ND	5
Bromomethane	ND	5
Chloroethane	ND	5
Trichlorofluoromethane	ND	1
1,1-Dichloroethene	ND	1
Methylene Chloride	16	5
cis-1,2-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
1,1-Dichloroethane	ND	1
Chloroform	ND	1
1,1,1-Trichloroethane	ND	1
Carbon Tetrachloride	ND	1
1,2-Dichloroethane	ND	1
Trichloroethene	ND	1
1,2-Dichloropropane	ND	1
Dibromomethane	ND	1
Bromodichloromethane	ND	2
2-Chloroethyl vinyl ether	ND	1
trans-1,3-Dichloropropene	ND	1
cis-1,3-Dichloropropene	ND	1
1,1,2-Trichloroethane	ND	1
Tetrachloroethene	ND	1
1,3-Dichloropropane	ND	1
1,1,1,2-Tetrachloroethane	ND	1
Dibromochloromethane	ND	1
Ethylene Dibromide	ND	1
Chlorobenzene	ND	1
Bromoform	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorotoluene	ND	1
1,3-Dichlorobenzene	ND	2
1,4-Dichlorobenzene	ND	2
1,2-Dichlorobenzene	ND	2
Benzylchloride	ND	1
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Bromofluorobenzene	102	65-135

RL: Reporting Limit



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EPA METHOD 8010  
HALOGENATED VOLATILE ORGANICS

CLIENT:	TRW	DATE COLLECTED:	08/07/96
PROJECT:	Monadnock	DATE RECEIVED:	08/07/96
BATCH NO.:	96H029	DATE EXTRACTED:	NA
SAMPLE ID:	M0080796-22 (Trip Blank)	DATE ANALYZED:	08/18/96
CONTROL NO.:	H029-07	MATRIX:	WATER
% MOISTURE:	NA	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/L)	RL (ug/L)
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl Chloride	ND	5
Bromomethane	ND	5
Chloroethane	ND	5
Trichlorofluoromethane	ND	1
1,1-Dichloroethene	ND	1
Methylene Chloride	14	5
cis-1,2-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
1,1-Dichloroethane	ND	1
Chloroform	ND	1
1,1,1-Trichloroethane	ND	1
Carbon Tetrachloride	ND	1
1,2-Dichloroethane	ND	1
Trichloroethene	ND	1
1,2-Dichloropropane	ND	1
Dibromomethane	ND	1
Bromodichloromethane	ND	2
2-Chloroethyl vinyl ether	ND	1
trans-1,3-Dichloropropene	ND	1
cis-1,3-Dichloropropene	ND	1
1,1,2-Trichloroethane	ND	1
Tetrachloroethene	ND	1
1,3-Dichloropropane	ND	1
1,1,1,2-Tetrachloroethane	ND	1
Dibromochloromethane	ND	1
Ethylene Dibromide	ND	1
Chlorobenzene	ND	1
Bromoform	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorotoluene	ND	1
1,3-Dichlorobenzene	ND	2
1,4-Dichlorobenzene	ND	2
1,2-Dichlorobenzene	ND	2
Benzylchloride	ND	1
 SURROGATE PARAMETER	 % RECOVERY	 QC LIMIT
Bromofluorobenzene	113	65-135

RL: Reporting Limit



CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave., Torrance, Calif. 90503 Tel. (310) 618-8889 Fax: (310) 618-0818

EPA METHOD 8010  
HALOGENATED VOLATILE ORGANICS

CLIENT: TRW	DATE COLLECTED: NA
PROJECT: Monadnock	DATE RECEIVED: NA
BATCH NO.: 96H029	DATE EXTRACTED: NA
SAMPLE ID: MBLK1W	DATE ANALYZED: 08/18/96
CONTROL NO.: VAH197B	MATRIX: WATER
% MOISTURE: NA	DILUTION FACTOR: 1

PARAMETERS	RESULTS (ug/L)	RL (ug/L)
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl Chloride	ND	5
Bromomethane	ND	5
Chloroethane	ND	5
Trichlorofluoromethane	ND	1
1,1-Dichloroethene	ND	1
Methylene Chloride	ND	5
cis-1,2-Dichloroethene	ND	1
trans-1,2-Dichloroethene	ND	1
1,1-Dichloroethane	ND	1
Chloroform	ND	1
1,1,1-Trichloroethane	ND	1
Carbon Tetrachloride	ND	1
1,2-Dichloroethane	ND	1
Trichloroethene	ND	1
1,2-Dichloropropane	ND	1
Dibromomethane	ND	1
Bromodichloromethane	ND	2
2-Chloroethyl vinyl ether	ND	1
trans-1,3-Dichloropropene	ND	1
cis-1,3-Dichloropropene	ND	1
1,1,2-Trichloroethane	ND	1
Tetrachloroethene	ND	1
1,3-Dichloropropane	ND	1
1,1,1,2-Tetrachloroethane	ND	1
Dibromochloromethane	ND	1
Ethylene Dibromide	ND	1
Chlorobenzene	ND	1
Bromoform	ND	1
1,1,2,2-Tetrachloroethane	ND	1
Chlorotoluene	ND	1
1,3-Dichlorobenzene	ND	2
1,4-Dichlorobenzene	ND	2
1,2-Dichlorobenzene	ND	2
Benzylchloride	ND	1
SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Bromofluorobenzene	105	65-135

RL: Reporting Limit



CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave., Torrance, Calif. 90503 Tel. (310) 618-8889 Fax: (310) 618-0818

CKY QUALITY CONTROL DATA  
MS/MSD ANALYSIS

CLIENT: TRW  
 PROJECT: Monadnock  
 METHOD: EPA 8010  
 MATRIX: WATER  
 % MOISTURE: NA

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BATCH NO.: 96H029  
 SAMPLE ID: M0080696-05  
 CONTROL NO.: H026-01

DATE RECEIVED: NA  
 DATE EXTRACTED: NA  
 DATE ANALYZED: 08/19/96

ACCESSION: 96H023 96H024 96H026 96H029

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	MS RSLT (ug/L)	MS % REC	SPIKE AMT (ug/L)	MSD RSLT (ug/L)	MSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
1,1-Dichloroethene	ND	50.00	54.40	109	50.00	55.30	111	2	65-135	30
Trichloroethene	ND	50.00	55.70	111	50.00	54.10	108	3	65-135	30
Chlorobenzene	ND	50.00	57.20	114	50.00	57.00	114	0	65-135	30

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SURROGATE PARAMETER	SPIKE AMT (ug/L)	MS RSLT (ug/L)	MS % REC	SPIKE AMT (ug/L)	MSD RSLT (ug/L)	MSD % REC	QC LIMIT %
Bromofluorobenzene	50.00	61.00	122	50.00	60.00	120	65-135



CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave., Torrance, Calif. 90503 Tel. (310) 618-8889 Fax: (310) 618-0818

CKY QUALITY CONTROL DATA  
LCS/LCD ANALYSIS

CLIENT: TRW  
 PROJECT: Monadnock  
 METHOD: EPA 8010  
 MATRIX: WATER  
 % MOISTURE: NA

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BATCH NO.: 96H029 DATE RECEIVED: NA  
 SAMPLE ID: LCS1W/LCS1WD DATE EXTRACTED: NA  
 CONTROL NO.: VAH197L/C DATE ANALYZED: 08/18/96

ACCESSION: 96H023 96H024 96H026 96H029

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
1,1-Dichloroethene	ND	50.00	50.70	101	50.00	50.80	102	1	70-125	30
Trichloroethene	ND	50.00	51.10	102	50.00	52.50	105	3	70-125	30
Chlorobenzene	ND	50.00	51.30	103	50.00	51.30	103	0	70-125	30

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SURROGATE PARAMETER	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	QC LIMIT %
Bromofluorobenzene	50.00	60.80	122	50.00	57.30	115	65-135



CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave., Torrance, Calif. 90503 Tel. (310) 618-8889 Fax: (310) 618-0818

96H023

A5/R6B2

CLIENT NAME: TRW  
ADDRESS: ONE SPACE PARK  
REDONDO BEACH, CA 90278  
PHONE NO. 813-2712 FAX NO. 812-4677  
PROJECT NAME: MONADNOCK  
SEND REPORT TO: MQ TABON

**CHAIN OF CUSTODY RECORD  
REQUEST FOR ANALYSIS**

DATE: 8-5-96  
PAGE 1 OF 1



**C K Y incorporated  
Analytical Laboratories  
630 Maple Ave.  
Torrance, Calif. 90503  
Tel: 310-618-8889  
Fax: 310-618-0818**

COMMENTS: Section 112 (Jellico)  $\Rightarrow$  P.M.

T-3 C8

Relinquished by: (Signature) <i>Dart</i>	Date: 8-5-96	Received by: (Signature) <i>Karen L. Smith</i>	Date: 8/6/96	Relinquished by: (Signature) <i>Kit</i>	Date: 8/6/96	Received by: (Signature) <i>J. S.</i>	Date: 8-5-96
Company: TRW	Time: 1343	Company: CUSTIC C. & R.	Time: 1:40	Company: CUSTIC C. & R.	Time: 2:41	Company: EMAX	Time: 2:41 PM

**Storage/Disposal of Samples:** Sample will be stored at CKY for 30 days at no charge and at \$10/sample/month thereafter. Disposal of sample by the Laboratory will be charged at \$10/sample.

CLIENT  
NAME: TRW  
ADDRESS: ONE SPACE PARK  
REDONDO BEACH, CA 90278  
PHONE NO. 813-2712 FAX NO. 812-4677  
PROJECT NAME: MONADNOCK  
SEND REPORT TO: MO TABON

**CHAIN OF CUSTODY RECORD  
REQUEST FOR ANALYSIS**

DATE: 8-6-96  
PAGE 1 OF 1



**C K Y incorporated  
Analytical Laboratories  
630 Maple Ave.  
Torrance, Calif. 90503  
Tel: 310-618-8889  
Fax: 310-618-0818**

SAMPLER NAME/SIGNATURE  BART WESSEL / Bart Wessel				TURN AROUND TIME		ANALYSES REQUIRED											
				NORMAL <input checked="" type="checkbox"/> RUSH <input type="checkbox"/>		SAMPLE DESCRIPTION		418.1	M8015	8010/601	8020/602	8030/603	8240/624	8270/625	CAM Metals	6010 METALS	9010 TOTAL CYANIDE
SAMPLE NUMBER	SAMPLING DATE/TIME	PRESERVATIVE	CONTAINER SIZE/TYPE	WATER	SOIL	OTHER											
M0080696-05	8-6-96	0800	HCl	2-40 ML. VOA VIALS	X					X							
M0080696-06				1-500ML. HDPE											X		
M0080696-07				2-500ML. HDPE												X	
M0080696-08				2-40 ML. VOA VIALS				X									
M0080696-09				1-500 ML. HDPE											X		
M0080696-10				2-500 ML. HDPE												X	
M0080696-11				2-40 ML. VOA VIALS					X								
M0080696-12				2-40 ML. VOA VIALS					X								
M0080696-13				1-500 ML. HDPE											X		
M0080696-14				2-500 ML. HDPE												X	
M0080696-15	↓	0930	HCl	2-40 ML. VOA VIALS	↓					X							

COMMENTS: LAB TO PERFORM MS/MSD

Relinquished by: (Signature) <u>Barry Weiss</u>	Date: 8-6-96	Received by: (Signature) <u>J. S. Sauer</u>	Date: 8-6-96	Relinquished by: (Signature)	Date:	Received by: (Signature)	Date:
Company: TRW	Time: 4:00 PM	Company: EMAX	Time: 4:00 PM	Company:	Time:	Company:	Time:

**Storage/Disposal of Samples:** Sample will be stored at CKY for 30 days at no charge and at \$10/sample/month thereafter. Disposal of sample by the Laboratory will be charged at \$10/sample.

CLIENT  
NAME: TRW  
ADDRESS: ONE SPACE PARK  
REDONDO BEACH, CA 90278  
PHONE NO. 813-2712 FAX NO. 812-4677  
PROJECT NAME: MADONNICK  
SEND REPORT TO: Mo TABON

# CHAIN OF CUSTODY RECORD REQUEST FOR ANALYSIS

DATE: 8-7-96  
PAGE 1 OF 1



CKY incorporated  
Analytical Laboratories  
630 Maple Ave.  
Torrance, Calif. 90503  
Tel: 310-618-8889  
Fax: 310-618-0818

SAMPLER NAME/SIGNATURE

BART WESSEL / Bart Wessel

SAMPLE NUMBER	SAMPLING DATE/TIME	PRESERVATIVE	CONTAINER SIZE/TYPE	TURN AROUND TIME			ANALYSES REQUIRED									
				WATER	SOIL	OTHER	418.1	M8015	8010/801	8020/802	8080/808	8240/824	8270/825	CAM Metals	6010	9010
M0080796-16	8-7-96	0750 HCl	2-40 ML VOA VIALS	X					X							
M0080796-17		0750 HNO <sub>3</sub>	1-500 ML HDPE										X			
M0080796-18		0750 NaOH	2-500 ML HDPE											X		
M0080796-19		0825 HCl	2-40 ML VOA VIALS						X							
M0080796-20		0825 HNO <sub>3</sub>	1-500 ML HDPE										X			
M0080796-21		0825 NaOH	2-500 ML HDPE											X		
M0080796-22		0825 HCl	2-40 ML VOA VIALS							X						
M0080796-23		0905 HCl	2-40 ML VOA VIALS							X						
M0080796-24		0905 HNO <sub>3</sub>	1-500 ML HDPE										X			
M0080796-25		0905 NaOH	2-500 ML HDPE											X		
M0080796-26	-	0905 HCl	2-40 ML VOA VIALS							X						
M0080796-27		1000 HCl	2-40 ML VOA VIALS							X						
M0080796-28		1000 HNO <sub>3</sub>	1-500 ML HDPE										X			
M0080796-29		1000 NaOH	2-500 ML HDPE											X		

COMMENTS: LAB TO PERFORM MS/MSD

Relinquished by: (Signature) <u>Bart Wessel</u>	Date: <u>8-7-96</u>	Received by: (Signature) <u>EMAX</u>	Date: <u>8-7-96</u>	Relinquished by: (Signature)	Date:	Received by: (Signature)	Date:
Company: <u>TRW</u>	Time: <u>1145</u>	Company: <u>EMAX</u>	Time: <u>1145</u>	Company:	Time:	Company: /	Time:

Storage/Disposal of Samples: Sample will be stored at CKY for 30 days at no charge and at \$10/sample/month thereafter. Disposal of sample by the Laboratory will be charged at \$10/sample.

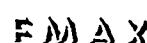
## SAMPLE RECEIPT FORM

דרכן

CONTROL NO.	96HO 23
CLIENT	TRW
PROJECT	MONAD Nook

DATE	08-05-96
TIME	2:41 PM
RECIPIENT	I. PATER

## SAMPLE RECEIPT FORM



**ANALYTICAL LABORATORIES INC., 630 Maple Ave., Torrance, CA 90503 TEL: (310) 618-8889 FAX: (310) 618-0818**

## SAMPLE RECEIPT FORM

EVALUATION OF ANALYTICAL

630 Maple Ave., Torrance, CA 90503 TEL: (310) 618-8889 FAX:

K: (310) 618-081

CONTROL NO.	96HO 29
CLIENT	TRW
PROJECT	MONADNOCK

DATE	08-07-96
TIME	11:45 AM
RECIPIENT	I PATEL/CLINTON

SAMPLE TRANSPORTATION TO EMAX LABORATORY:	BY	ON(DATE)	AT(TIME)	FROM(SITE/CO.)	COMMENTS
PICKED-UP BY EMAX COURIER					
DELIVERED BY CLIENT ✓	SEE COE				
SHIPPED/AIRBILL NO.					

SAMPLE BATCH PACKAGING/SEALING UPON RECEIPT:		INTACT	DAMAGED	SEALED	NOT SEALED	NO CONTAINER	
CONTAINER:	INSIDE TEMPERATURE:		ICED C	CUSTODY SEAL		LOCATION	NUMBER
COOLER	PACKAGING	TYPE	SUFFICIENCY	INTACT	DAMAGED		
BOX	INSULATION:		OK	NAME:	.		
OTHER:	ICE/COOLANT:	REGULAR	/	DATE:			
	PACKING MATERIAL:	NONE	/	TIME:			

SAMPLE DOCUMENTATION/CHAIN-OF-CUSTODY(COC)		SEALED	ENCLOSED	<input checked="" type="checkbox"/> HANDCARRIED	FAXED	MAILED	
SAMPLE LOG-IN:	CRITERIA	COMMENTS			DISCREPANCY		
SAMPLE CUSTODY SEAL	EVERY SAMPLE	None					
CONTAINER TYPE/MATERIAL	APPROPRIATE	OK					
SAMPLE AMOUNT	ENOUGH						
SAMPLE PRESERVATION/HOLDING TIME	SUFFICIENT						
HEADSPACE/BUBBLES	ZERO/NONE						
SAMPLE LABEL INFORMATION	SUFFICIENT						
CHAIN-OF-CUSTODY INFORMATION	SUFFICIENT	To					
SAMPLE INFO.:	SAMPLE ID	DATE	TIME	SIGNATURE	ANALYSES	PRESERVATIVE	CONTAINER
INDIVIDUAL SAMPLE CONTAINER:		NONE	SEALED PLASTIC BAG		CAN	OTHER(SPECIFY):	

## GROUNDWATER ANALYTICAL QC LOG

Project: Monadnock

Date: 8-5-96

Sample Number	Well Number	Time	QC Sample	Samplers Initials
M0080596-01	MW-12	1200	N/A	BW
M0080596-02	MW-12	1200	N/A	BW
M0080596-03	MW-12	1200	N/A	BW
M0080596-04	MW-12	1200	EQUIP. BLANK	BW
M0080696-05	MW-3	0800	N/A	BW
M0080696-06	MW-3	0800	N/A	BW
M0080696-07	MW-3	0800	N/A	BW
M0080696-08	MW-1	0830	N/A	BW
M0080696-09	MW-1	0830	N/A	BW
M0080696-10	MW-1	0830	N/A	BW
M0080696-11	N/A	0830	TRIP BLANK	BW
M0080696-12	MW-2	0920	N/A	BW
M0080696-13	MW-2	0920	N/A	BW
M0080696-14	MW-2	0920	N/A	BW
M0080696-15	MW-2	0930	DUPLICATE	BW
M0080796-16	MW-4	0750	N/A	BW
M0080796-17	MW-4	0750	N/A	BW
M0080796-18	MW-4	0750	N/A	BW
M0080796-19	MW-11	0825	N/A	BW
M0080796-20	MW-11	0825	N/A	BW
M0080796-21	MW-11	0825	N/A	BW
M0080796-22	N/A	0825	TRIP BLANK	BW

Decon H<sub>2</sub>O changed out after well number:

Observations/Notes:

025.1

## GROUNDWATER ANALYTICAL QC LOG

Project: Monadnock  
Date: 8-7-96

Decon H<sub>2</sub>O changed out after well number:

**Observations/Notes:**

025.2